

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2023-077

Application Received complete: March 18, 2024

Considered at Board of Managers Meeting: May 8, 2024; June 5, 2024

Applicant: Brandl Anderson Homes; Matt Olsons **Consultant:** James R. Hill Inc.; John Bender, PE

Project: Enclave at Manor Road Residential Development – The applicant proposes the demolition

of an existing single-family home and the construction of a 17-lot single-family residential

development.

Location: 6591 West 168th, Eden Prairie **Reviewer:** Scott Sobiech, PE, Barr Engineering

Potential Board Variance Action
Manager moved and Manager seconded adoption of the following resolution based on the permit report that follows, the presentation of the matter at the May 8 and June 5, 2024, meetings of the managers and the managers' findings, as well as the factual findings in the permit report that follows:
Resolved that the variance request for Permit 2023-077 from compliance with Rule J, subsection 3.1a, is approved based on the facts and analysis provided by the RPBCWD engineer below and placed in the record at the May 8 and June 5, 2024, meetings of the managers, and the managers' findings in the record of the May 8, and subject to the following conditions: 1. [CONDITION(S)],
Proposed Board Action
Manager moved and Manager seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the May 8 and June 5, 2024, meetings of the managers:
Resolved that the application for Permit 2023-077 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report;
Resolved that on determination by the RPBCWD administrator that the conditions of approval have been met, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2023-077 to the applicant on behalf of RPBCWD.
Upon vote, the resolutions were adopted, [VOTE TALLY].

Applicable Rule Conformance Summary

Rule	Issue	Conforms to RPBCV	VD Rules?	Comments
С	Erosion Control Plan	See Comment		See rule-specific permit condition C1 related to name of individual responsible for on-site erosion control.
J	Stormwater Management	Rate	No	Applicant is requesting a variance from rate control at one location following Rule K.
		Volume	yes	
		Water Quality	Yes	
		Low Floor Elev.	Yes	See rule-specific permit condition J1 related to additional soil boring to verify low floor compliance.
		Maintenance	See comment	See rule-specific permit condition J2 related to recordation of stormwater facility maintenance declaration.
		Chloride Management	Yes	
		Wetland Protection	Yes	
К	Variances and Exceptions	See Comment		Variance from rate control at all discharge locations in subsection 3.1a of the Stormwater Management rule requested.
L	Permit Fee Deposit	See Comment		\$5000 received January 26, 2024. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. As of May 30, 2024 the amount due is \$10,955
M	Financial Assurances	See Comment		The financial assurance is calculated at \$110,968.

Project Description

The proposed Enclave at Manor Road redevelopment project is the redevelopment of a single-family residential property into a 17-lot single-family residential development with associated sewer and utilities, street, construction of a wet forebay, biofiltration basin, backyard swales, and preservation of natural areas to provide rate control, volume abstraction, and water quality. The applicant also proposes to replace the existing 18-inch storm sewer pipe in the eastern boulevard of 168th Street with a 21-inch pipe.

After discussion about the rate control variance request as presented in the permit report for the May 8 meeting, the RPBCWD Board of Managers voted to deny the variance request. The managers also extended the permit-review period by 60 days to July 11, 2024, to allow additional time for design revisions, coordination, and review. The applicant has been working with its engineer, City of Eden Prairie staff, and the RPBCWD engineer since the permit was discussed at the May 8, 2024, board meeting.

The applicant performed additional analysis to investigate alternatives to address/clarify the following concerns raised by the managers.

- Impacts to flow entering Purgatory Creek
- Loss of trees and natural vegetation
- Increased downstream flood risk.

On May 21, 2024, RPBCWD received a revised submittal indicating that the applicant proposes to preserve an additional 11,800 square feet (0.27 acres) of natural vegetation and trees, resulting in a total preservation area of 1.32 acres (about 20.5% of the parcel). The applicant continues to request a variance from rate control. The majority of revisions presented in this updated permit report are focused under the Rule K, variance analysis section.

The project site information is summarized below:

Project Site Information	Area (acres)
Total Site Area	6.5
Existing Site Impervious	0.51
Proposed Site Impervious Area	1.96
Change in Site Impervious Area	1.45 (>100% increase)
Regulated Impervious Surface	1.96
Total Disturbed Area	5.34

Exhibits:

- 1. Permit Application received December 18, 2023 (The applicant was notified on December 20, 2023 and again on February 16, 2024 that the submittal was incomplete; information completing the application was received on March 13, 2024)
- 2. Stormwater Management Plan dated January 24, 2024 (revised March 7, 2024, April 19, 2024, and May 20, 2024)
- 3. Project Plan Set dated January 24, 2024 (revised March 7, 2024, March 18, 2024, and May 21, 2024)
- 4. HydroCAD models received February 7, 2024 (revised March 13, 2024, April 19, 2024, and May 21, 2024)
- 5. Existing and proposed conditions P8 models received February 7, 2024 (revised March 13, 2024, April 19, 2024, and May 21, 2024)
- 6. MIDS model received April 22, 2024 (revised May 21, 2024)
- 7. PCSWMM models for existing and proposed conditions received March 13, 2024 (revised April 19, 2024 and May 21, 2024)
- 8. Geotechnical Exploration Report by Haugo GeoTechnical Services dated January 24, 2024
- 9. Variance Request Narrative dated March 7, 2024 (revised April 19, 2024 and May 21, 2024)
- 10. Infiltration testing results dated November 3, 2023
- 11. Engineer's opinion of probable cost received March 18, 2024 (revised April 19, 2024)
- 12. Response to comments received April 22, 2024.

Rule Specific Permit Conditions

Rule C: Erosion and Sediment Control

Because the project will alter 5.34 acres of land-surface area, the project must conform to the requirements in the RPBCWD Erosion and Sediment Control rule (Rule C, Subsection 2.1).

The erosion control plan prepared by James R. Hill Inc. includes installation of silt fence perimeter control, rock construction entrance, inlet protection, concrete washout, erosion control blanket, weekly inspection, placement of a minimum of 6 inches of topsoil with at least 5% organic content, decompaction of areas compacted during construction, and retention of native topsoil onsite. To conform to the RPBCWD Rule C requirements the following revisions are needed:

C1. The Applicant must provide the name and contact information of the individual responsible for erosion control at the site. RPBCWD must be notified if the responsible individual changes during the permit term.

Rule J: Stormwater Management

Because the project will alter 5.34 acres of land-surface area and increase the site imperviousness by more than 50%, the redevelopment must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.3) for the entire site. The applicant proposes construction of a biofiltration basin with forebay, backyard swales, and preservation of natural areas to provide volume control, water quality, and rate control.

Rate Control

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The Applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the site are summarized in the table below. Because the proposed project increases the discharge to the storm sewer in West 168th Street to provide an outlet for the proposed stormwater facility, the applicant requested a variance from compliance with the rate control criteria at this location (see Rule K variance analysis). Except for the increase discharge leaving the site at this location (the northwest corner of the site), the proposed project is in conformance with RPBCWD Rule J, Subsection 3.1.a.

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
North	9.1	2.3	18.4	5.0	37.7	10.7	0.9	0.2
East	1.0	0.2	2.3	0.5	5.0	1.0	0.1	<0.1
South	2.1	0.1	4.5	0.3	9.7	0.6	0.2	<0.1

West	0.2	<0.1	0.3	0.1	0.7	0.1	<0.1	<0.1
168th	0	1.1	0	2.2	0	3.5	0	0.9

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from all impervious surface of the parcel. An abstraction volume of 7,826 cubic feet is required from the 1.96 acres of regulated impervious area. The Plans indicate pretreatment for runoff entering the stormwater facility is provided by grass overland flow and sump manholes, thus the proposed project conforms with RPBCWD Rule J, Subsection 3.1b.1.

Based on the eight soil borings in the Geotechnical Exploration and Review Report conducted by Haugo GeoTechnical Services, the site contain 2 to 7 feet of topsoil overlying predominantly clayey glacial till deposits. Groundwater was not encountered at any boring location, the deepest of which extended to elevation 909.6 feet and collected within the footprint of the proposed stormwater facility. The bottom of the biofiltration basin is at elevation 926.0 feet, 16.4 feet above the bottom of the boring, groundwater is at least 3 feet below the bottom of the subsurface stormwater management facility, complying with Rule J, Subsection 3.1.b.ii..

Double ring infiltrometer test collect by Haugo GeoTechnical Services revealed an infiltration rate of 0.0 in/hr beneath the proposed stormwater management facility. Because the test yielded no infiltration, the infiltration capacity of the underlying soils on this site is limited. The communal open space for irrigation is limited to the stormwater BMPs which negate reuse. Because the engineer concurs that the soil information and infiltration testing support that the abstraction standard in subsection 3.1b of Rule J cannot practicably be met, the site is considered restricted and stormwater runoff volume must be managed in accordance with subsection 3.3 of Rule J.

For restricted sites, subsection 3.3 of Rule J requires rate control in accordance with subsection 3.1.a and that abstraction and water quality protection be provided in accordance with the following sequence:

- (a) Abstraction of 0.55 inches of runoff from site impervious surface determined in accordance with paragraphs 2.3, 3.1 or 3.2, as applicable, and treatment of all runoff to the standard in paragraph 3.1c; or
- (b) Abstraction of runoff onsite to the maximum extent practicable and treatment of all runoff to the standard in paragraph 3.1c; or
- (c) Off-site abstraction and treatment in the watershed to the standards in paragraph 3.1b and 3.1c.

Based on the measured infiltration testing results, the applicant is providing a 6-inch sand storage layer below the biofiltration basin underdrain to promote infiltration and relying on vegetation in the basin to provide abstraction to the maximum extent practicable to conform to Rule J, subsection 3.3b. The designed abstraction performance for the project site is summarized in the table below.

Volume Abstraction Summary

Required	Required	Provided	Provided
Abstraction Depth	Abstraction Volume	Abstraction Depth	Abstraction Volume
(inches)	(cubic feet)	(inches)	(cubic feet)
0.55	3,913	0.02	140

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant to provide volume abstraction in accordance with 3.1b or least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff, and no net increase in TSS or TP loading leaving the site from existing conditions. The Applicant is proposing a wet forebay, biofiltration basin, backyard swales, and preservation of natural areas to treat runoff from the regulated impervious area. The applicant is also a proposing preservation of 1.32 acres of natural area. P8 was used to evaluate the removal efficiencies of the stormwater management features. The results of this modeling are summarized in tables below showing the annual TSS and TP removal requirements are achieved and that there is no net increase in TSS and TP leaving the site. The engineer concurs with the modeling and finds that the proposed project is in conformance with Rule J, Subsection 3.1.c.

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	1,744	1,590 (90%)	1,612 (92.4%)
Total Phosphorus (TP)	5.73	3.44 (60%)	3.52 (61.4%)

Pollutant of Interest	Existing Site Loading (lbs/yr)	Proposed Site Load after Treatment (lbs/yr)	Change (lbs/yr)
Total Suspended Solids (TSS)	676	131	-545
Total Phosphorus (TP)	2.3	2.18	-0.12

Low floor Elevation

All new buildings must be constructed such that the lowest floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow of a stormwater-management facility according to Rule J, Subsection 3.6a. In addition, a stormwater-management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with this requirement according to Rule J, Subsection 3.6b.

As summarized in the following table, the low floor elevations of the proposed structures in Block 1 are more than two feet above the 100-year flood elevation of the proposed biofiltration basin or 1 foot above the adjacent emergency overflow for the backyard low points, thus the lots in Block 1 one are in conformance with Rule J, Subsection 3.6. Because the proposed preservation of an additional 0.27 acres of natural areas results in less runoff being directed to the stormwater facility, the flood elevation in the biofiltration basin is reduce about 0.2 feet.

Structure	Low Floor Elevation of Building (ft)	Stormwater Facility	100-year Event Flood Elevation of Facility (ft)	Freeboard to 100-year HWL (ft)	Emergency Overflow Elevation (ft)	Freeboard to Emergency Overflow (ft)
Blk 1, L1	936.5	Biofiltration Basin	933.61	2.89	1	
Blk 1, L2	936.3	CBMH-301	-		934.2	2.1
Blk 1, L3	937.1	CBMH-301	-		934.2	2.9
Blk 1, L4	937.9	CBMH-302			935.3	2.6
Blk 1, L5	938.7	CBMH-302	-		935.3	3.4
Blk 1, L6	939.5	CBMH-303	-		936.5	3.0
Blk 1, L7	939.5	CBMH-303	1		936.5	3.0
Blk 1, L8	939.4	CBMH-303			936.5	2.9
Blk 2, L1	936.1	CB-110	939.5	-3.4	941.0	-4.9
Blk 2, L2	935.9	CB-110	939.5	-3.6	941.0	-5.1
Blk 2, L3	936.7	CB-112	939.5	-2.8	941.5	-4.8
Blk 2, L4	936.7	CB-112	939.5	-2.8	941.5	-4.8
Blk 2, L5	936.7	CB-112	939.5	-2.8	941.5	-4.8
Blk 2, L6	938.3	CB-112	939.5	-1.2	941.5	-3.2
Blk 2, L7	939.3	CB-112	939.5	-0.2	941.5	-2.2
Blk 2, L8	940.1	CB-113	939.5	0.6	946.3	-6.2
Blk 2, L9	941.2	CB-113	946.3	-5.1	946.3	-5.1

Because the proposed low floor elevations of lots in Block 2 and the low floors of existing structures are less than 2 feet above the 100-year high-water elevation, an alternative low floor analysis was conducted as outlined in Rule J, Appendix J.1 – Low-Floor Elevation Assessment. Groundwater was not discovered in any of the soil borings collected at the site, thus the groundwater elevations were presumed to be at the elevation of the bottom of the boring nearest the structure. The results of the low-floor analysis using Appendix J1 Plot 2: Minimum Depth to Water Table for No Further Evaluation are summarized in the following table. The results demonstrate the provided separation is greater than the minimum required, thus meeting the habitable structure requirements in Rule J, Subsection 3.6.

Structure	Lowest Floor Elevation of Building (feet)	Stormwater Facility	Distance from Building to Adj. Facility (ft)	Representative Soil Boring	Estimated Water Table Elevation ¹ (ft)	Minimum Allowable Depth to Water Table (ft)	Provided Depth from Low Floor Elevation to Water Table (ft)
Blk 2, L1	936.1	CB-110	10	SB-7	919.7	16	16.4
Blk 2, L2	935.9	CB-110	10	SB-7	919.7	16	16.2
Blk 2, L3	936.7	CB-112	55	SB-7	919.7	6.5	17
Blk 2, L4	936.7	CB-112	45	SB-6	920.1	7.2	16.6
Blk 2, L5	936.7	CB-112	35	SB-6	920.1	9.2	16.6
Blk 2, L6	938.3	CB-112	32	SB-6	920.1	10	18.2
Blk 2, L7	939.3	CB-112	45	SB-5	923	7.2	16.3
Blk 2, L8	940.1	CB-113	12	SB-5	923	15.8	17.1
Blk 2, L9	941.2	CB-113	10	SB-5	923	16	18.2

Structure	Lowest Floor Elevation of Building (feet)	Stormwater Facility	Distance from Building to Adj. Facility (ft)	Representative Soil Boring	Estimated Water Table Elevation ¹ (ft)	Minimum Allowable Depth to Water Table (ft)	Provided Depth from Low Floor Elevation to Water Table (ft)
6537 W 168th Ave.	924.6	Biofiltration Basin	40	SB-1	909.6 ²	9.0	15
16480 N. Manor Rd.	915.5	CBMH-301	177	SB-1	909.6 ²	0.5	5.9
16500 N. Manor Rd.	911.0	CBMH-301	161	SB-1	909.6²	1.0	1.4
16520 N. Manor Rd.	911.7	CBMH-301	150	SB-1	909.6 ²	1.0	2.1
16540 N. Manor Rd.	912.2	CBMH-302	139	SB-1	909.6²	1.0	2.6
6601 W. 168th Ave.	934.5	CB-110	23	SB-7	919.7 ²	12.0	14.8
16720 Honeysuckle La.	934.0	CB-110	74	SB-7	919.7 ²	5.0	14.3
16716 Honeysuckle La.	937.0	CB-112	32	SB-6	920.1 ²	10.5	16.9
16712 Honeysuckle La.	937.5	CB-112	94	SB-6	920.1 ²	3.0	17.4
16680 Honeysuckle La.	937.0	CB-112	73	SB-5	923.0 ²	5.0	14.0

 $^{^{\}rm 1}\,{\rm Presumed}$ to be at the elevation of the bottom of the boring nearest the structure.

Because the borings are not located at the proposed structures perimeter closest location to the stormwater management facility, additional subsurface investigation is needed to verify adequate separation between the proposed low floor and groundwater.

Maintenance

Subsection 3.7 of Rule J requires the submission of a maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed.

J1. Permit applicant must provide a maintenance and inspection declaration. A maintenance declaration template is available on the permits page of the RPBCWD website. (http://www.rpbcwd.org/permits/). The declaration must include the all stormwater management facilities as well as the preserved natural areas and vegetated swales included as functional elements of the stormwater-management plan. A draft declaration must be provided for District review and approval prior to recording.

² Soil boring are the closest available information but are not adjacent to the existing structures.

Wetland Protection

Because the proposed activities discharge to a downstream stormwater management facility Rule J, subsection 3.10 does not impose requirements on the project.

Chloride Management

Subsection 3.8 of Rule J requires the submission of chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan. Under subsection 3.8, the RPBCWD chloride-management plan requirement applies to the streets and common areas of the project site, but not the individual single-family homes. Because the streets within the proposed residential development will be within public right of way that will be maintained by the city of Eden Prairie and the City has provided its chloride management plan and its designated state-certified chloride applicator is Eden Prairie's Streets Division Manager Larry Doig, the proposed development conforms with Rule J, subsection 3.8.

Rule K: Variances and Exceptions

The applicant requested variances from the Rule J, Subsection 3.1a for rate control at the NW discharge location.

The attached variance request letter submitted on behalf of the applicant cites several facts related to the development in support of the request. Rule K requires the Board of Managers to find that because of unique conditions inherent to the subject property the application of rule provisions will impose a practical difficulty on the Applicant. Assessment of practical difficulty is conducted against the following criteria:

- 1. how substantial the variation is from the rule provision;
- 2. the effect of the variance on government services;
- whether the variance will substantially change the character of or cause material adverse effect to water resources, flood levels, drainage or the general welfare in the District, or be a substantial detriment to neighboring properties;
- 4. whether the practical difficulty can be alleviated by a technically and economically feasible method other than a variance. Economic hardship alone may not serve as grounds for issuing a variance if any reasonable use of the property exists under the terms of the District rules;
- 5. how the practical difficulty occurred, including whether the landowner, the landowner's agent or representative, or a contractor, created the need for the variance; and
- 6. in light of all of the above factors, whether allowing the variance will serve the interests of justice.

It is the applicant's obligation to address these criteria to support a variance request (see attached variance memo). Following is the RPBCWD engineer's assessment of information received relevant to the applicant's variance requests.

The variance request is from the requirements of subsection 3.1a of the stormwater management rule (Rule J) which states rate for rate control must be provided at all locations discharge leaves the site. For purposes of the Board of Managers' consideration, the following factors were analyzed based on Rule K.

• Related to variance criterion 1 – As presented in the above rate control section, most of the runoff from the site discharges overland to the north to the neighboring properties, ultimately flowing into the storm sewer in North Maner Road under existing conditions. Rather than continuing to

discharge to the neighboring properties, the applicant is proposing to discharge treated site runoff to an existing storm sewer in the boulevard along 168th Avenue which conveys flows to the storm sewer in North Maner Road. The change in stormwater routing and the discharge location would result in between 0.9 cfs to 3.5 cfs of additional flow into the existing storm sewer. Because stormwater currently does not discharge to the NW, the deviations from RPBCWD standards are substantial.

- Regarding variance criteria 2 and 3 –The additional flow into the existing 18-inch storm sewer would exacerbate a known flooding problem to the west of 168th Avenue. The applicant is proposing to increase the diameter of existing storm sewer along 168th Avenue from 18 inches to 21 inches to accommodate the additional flow. The following information provided by the applicant summarizes the off-site flood risk impacts at several locations.
 - Flow rates entering Purgatory Creek are reduced.

Storm Event	Existing Flow (cfs)	Proposed Flow (cfs)
2-year	30.3	30.2
10-year	56.5	56.1
100-year	1091.0	1051.6

 The revised design preserves an additional 0.27 acres of natural area with trees from the initial proposed design. This results in a total preservation area of 1.32 acres or roughly 20.5% of the parcel.



The aggregate flow leaving the site is reduced.

Storm Event	Existing Flow (cfs)	Proposed Flow (cfs)
2-year	12.2	2.7
10-year	25.1	7.0
100-year	52.0	14.9

With the exception of the 100-year elevation at location 6, the proposed project would maintain or reduce the flood risk in the downstream depressions. The following table summarizes the impact on off-site flood level for the 2-, 10-, and 100-year events. The proposed-conditions modeling indicates there would be a 0.3foot reduction in the



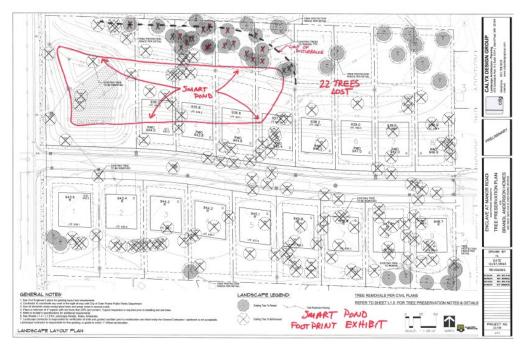
100-year flood elevation in area 9 (shown in photo above). This would provide some flood risk reduction to the adjacent homes relative to existing conditions.

Location	Description	Existing 2-Yr HWL	Proposed 2-Yr HWL (21"N-S)	Existing 10-Yr HWL	Proposed 10-Yr HWL (21"N-S)	Existing 100-Yr HWL	Proposed 100-Yr HWL (21"N-S)
1	Rear Yard Low Point	929.7	929.7	930.1	930.1	931.9	931.8
1	Lot 7, Block 1Coachlight Manor		(0.0)		(0.0)		(-0.10)
6	Pond in Block 2, Lot	911.7	910.6	913.7	913.7	913.9	914.0
U	1 Majestic Oaks		(-1.1)		(0.0)		(+0.10)
9 Northern Low Point		905.3	904.9	907.8	907.1	910.6	910.3
			(-0.4)		(-0.6)		(-0.3)

• The applicant considered the following alternatives to alleviate the practical difficulty (variance criterion 4) or reduce the magnitude of the variance from compliance.

- Discharging sheet flow to the adjacent properties to the north to align with current drainage paths would eliminate the need for a variance. A long rock trench outlet or long concrete weir wall concept configurations were considered but dismissed for the following reasons:
 - They would result in increased land disturbance and limit the preservation of existing trees and vegetation.
 - Would require between 20-27 additional trees be removed to construct the facilities.
 - Construction to ensure uniform discharge over the entire length of the weir presents logistical challenges. Any settlement or deviation in the crest elevation would result in channelized flow onto adjacent properties.
 - The stormwater facility will collect public drainage and be transferred to the City of Eden Prairie for ongoing management. Extensive effort would be needed to access and maintain flow-spreading facility.
- The applicant dismissed the idea of constructing a new storm sewer discharge directly north toward the storm sewer in North Manor because the applicant did not obtain property rights to install the storm sewer through the private properties. In addition, modeling indicates this option would not reduce the impacts at location 6.
- To respond to the managers questions at the May 8, 2024 meeting, the applicant considered the following onsite runoff-retention/abstraction strategies to reduce the magnitude of the variance request. As a surrogate for sizing and modeling each alternative, the applicant used the PCSWMM model to estimate the impact on the 100-year runoff and flood elevations of abstracting an amount of runoff equivalent to 1.1 inches from the regulated impervious surface (i.e., the full abstraction required by Rule J, subsection 3.1b). Because the 100-year event represents 7.41 inches of rainfall, the modeling confirmed that abstracting 1.1 inches from the impervious surface has negligible impacts on the off-site 100-year flood elevations.
 - Natural area preservation is incorporated into the site design. As described above the applicant adjusted the plans to provide an addition 0.27 acres of natural area and tree preservation.
 - Stormwater harvest and reuse were dismissed due to concerns with sufficient water retention to meet the entire demand for all lots, public roadway runoff and associated pollutants impact private lawns, equitable use by individual resident irrigation systems.
 - Rain gardens on each lot was dismissed because the soils on the site are not conducive to infiltration, thus requiring and underdrain which would limit the abstraction volume achieved by the gardens.
 - Tree trenches were not a viable option because the city of Eden Prairie does not allow trees within public right-of-way.

o Redesign of the stormwater facility to provide live storage to hold the runoff from the entire 100-year event and release water via an electronically actuate value or pump station only when downstream storm sewer has capacity (referred to the "Smarty Pond" alternative in the applicants variance memo.) The applicant's narrative suggests this alternative has the potential to alleviate the modeled increase in downstream flood elevation at location 6. The applicant dismissed the alternative because of concern the system would not achieve the necessary pollutant removals, result in 22 more trees being removed to facilitate grading, rely on electrical controls and power (ie, concerns about power failure), logistical challenges/concerns express by the city related to the complex and intensive maintenance requirements (The stormwater facility will collect public drainage and be transferred to the City of Eden Prairie for ongoing management).



• Regarding variance criterion 5, the applicant has created the circumstances leading to the variance by connecting the storm sewer for the proposed development into the existing off-site storm sewer rather than discharging runoff overland to adjacent properties.

The engineer makes no determination as to whether there is an adequate technical basis for the managers to rely on to grant the requested variance. If the Managers grant the requested variance the RPBCWD engineer recommends the managers discuss a further condition with legal counsel, such as the following:

K1. The applicant must provide written indemnification of the RPBCWD, signed by a representative with authority to bind the applicant, from all claims and causes of action arising from the proposed noncompliance with the RPBCWD low-floor criteria.

Rule L: Permit Fee Deposit:

The RPBCWD permit fee schedule adopted in February 2020 requires permit applicants to deposit \$3,000 to be held in escrow and applied to cover the \$10 permit-processing fee and reimburse RPBCWD for permit

review and inspection-related costs and when a permit application is approved, the deposit must be replenished to the applicable deposit amount by the applicant before the permit will be issued to cover actual costs incurred to monitor compliance with permit conditions and the RPBCWD Rules. A permit fee deposit of \$3,000 and a \$2,000 variance fee were received on January 16, 2024. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. Subsequently, if the costs of review, administration, inspections and closeout-related or other regulatory activities exceed the fee deposit amount, the applicant will be required to replenish the deposit to the original amount or such lesser amount as the RPBCWD administrator deems sufficient within 30 days of receiving notice that such deposit is due. The administrator will close out the relevant application or permit and revoke prior approvals, if any, if the permit-fee deposit is not timely replenished.

L1. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. As of May 30, 2024 the amount due is \$10,955.

Rule M: Financial Assurance:

	Unit	Unit Cost	# of Units	Total
Rule C: Erosion Control				
Silt Fence	LF	\$2.50	1,920	\$4,800
Inlet Protection	EA	\$100	15	\$1,500
Rock Entrance	EA	\$250	1	\$250
Restoration of disturbance	Ac	\$2,500	5.61	\$14,025
Rule J: Stormwater Management Infiltration basin: 125% of engineer's opinion of cost (1.25*\$64,244)	EA	125% OPC	1	\$80,305
Contingency (10%)		10%		\$10,088
Total Financial Assurance				\$110,968

Applicable General Requirements:

- 1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
- 2. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans, specifications, and modeling are listed on the permit. The grant of the permit does not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.
- 3. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
- 4. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

- 5. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.
- 6. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
- 7. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

Findings

- 1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
- 2. The Applicant has requested a variance from compliance with the Rule J criteria related control at all point discharge leave the site.
- 3. The proposed project will conform to Rules C if the Rule Specific Permit Conditions listed above are met.

Recommendation:

Approval of the permit contingent upon:

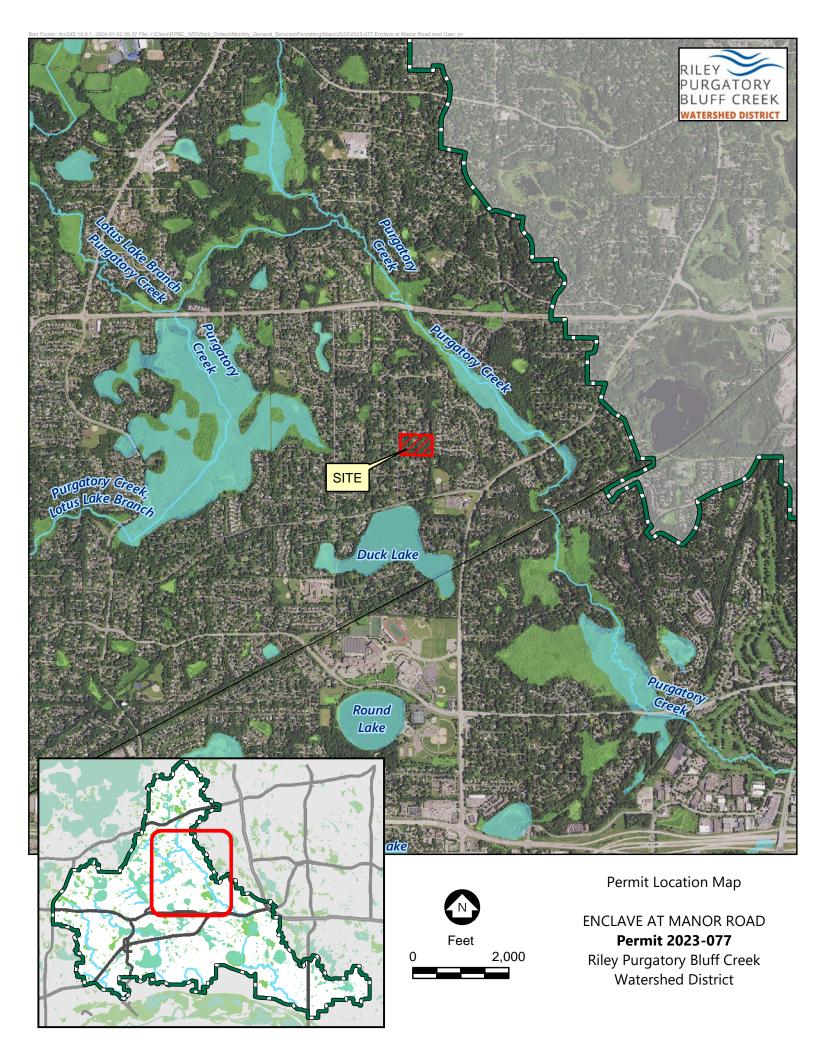
- 1. Financial Assurance in the amount of \$110,968.
- 2. Permit applicant must provide the name and contact information of the general contractor responsible for the site. RPBCWD must be notified if the responsible party changes during the permit term.
- 3. Receipt in recordation a maintenance declaration for the operation and maintenance all stormwater management facilities. The declaration must include the all stormwater management facilities as well as the preserved natural areas and vegetated swales. Drafts of all documents to be recorded must be reviewed and approved by the District prior to recordation.
- 4. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. The amount needed to replenish the permit fee deposit is \$10,955 as of May 30, 2024.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

- 1. Continued compliance with General Requirements.
- 2. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization the stormwater management facilities

conforms to design specifications and functions as intended and approved by the District. Asbuilt/record drawings must be signed by a professional engineer licensed in Minnesota and include, but not limited to:

- a) the surveyed bottom elevations, water levels, and general topography of all facilities;
- b) the size, type, and surveyed invert elevations of all stormwater facility inlets and outlets;
- c) the surveyed elevations of all emergency overflows including stormwater facility, street, and other;
- d) other important features to show that the project was constructed as approved by the Managers and protects the public health, welfare, and safety.
- 3. Providing the following additional close-out materials:
 - a) Documentation that constructed infiltration facility performs as designed. This may include infiltration testing, flood testing, or other with prior approval from RPBCWD
 - b) Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.2c criteria
- 4. The work on the Enclave at Manor Road subdivision under the terms of permit 2023-077, if issued, must have an impervious surface area and configuration materially consistent with the approved plans. Design that differs materially from the approved plans (e.g., in terms of total impervious area) will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.
- 5. The applicant must submit additional soil investigation information supporting documentation demonstrating there is adequate freeboard or separation to groundwater to achieve the low floor criteria for Block 2, Lots 1, 2, 4, 6, 8, and 9. If the technical information demonstrates the structure would not comply with the low floor requirement in subsection 3.6a, design modifications to achieve compliance with RPBCWD requirements will need to be submitted in the form of an application for a permit modification or new permit.



ENCLAVE AT MANOR ROAD

EDEN PRAIRIE, MN

for BRANDL ANDERSON

VARIANCE REQUEST ADDENDUM

May 20, 2024

Prepared by: John Bender, P.E. License No. 43358



James R. Hill, Inc.
2999 W. County Road 42, Ste. 100
Burnsville, MN 55306
Ph: 952-890-6044
ENCLAVE AT MANOR ROAD
EDEN PRAIRIE, MN

INTRODUCTION

On April 19, 2024 on behalf of Brandl Anderson, James R. Hill submitted to Riley Purgatory Bluff Creek Watershed District (RPBCWD) an updated request for variance from their rate control rules for the proposed Enclave at Manor Road development in Eden Prairie, MN. On May 8th, 2024 the RPBCWD Board of Managers heard the variance request and voted against it in a 3-2 decision. The concerns listed by the Managers included:

- Impacts to flow entering Purgatory Creek
- Loss of trees and natural vegetation
- Increased downstream flood risk

Additionally, Managers suggested considering alternative stormwater management options to eliminate or reduce the severity of the variance, including stormwater reuse, tree trenches and small rain gardens.

The purpose of this addendum to the variance narrative is to address the Managers' concerns and recommendations and provide supporting information.

As demonstrated by the stormwater management plan and variance request, the proposed development will meet the water quality and volume abstraction requirements for a restricted site. The overall runoff rates for each critical storm event are reduced in the proposed condition. However, to avoid creating a nuisance condition for the neighbors, the discharge from the proposed stormwater basin will route to public storm sewer along 168th Ave. instead of directly onto neighboring properties to the north. The public storm sewer routes to the same downstream location as site runoff to the north, thus the overall existing drainage pattern is maintained in the proposed condition.

REDUCTION OF PEAK FLOW IN PURGATORY CREEK

The Board of Managers raised concerns about the rate of water entering Purgatory Creek resulting from the proposed variance. RPBCWD has recently implemented restoration of portions of Purgatory Creek and protecting it is of prime importance to the Board. To address this concern, the proposed development was added to the RPBCWD PCSWMM model and compared to the existing condition model. As shown in the **Table 1**, the flow rates of Purgatory Creek in the proposed condition downstream of the site will be less than existing for all critical rain events.

TABLE 1 – Purgatory Creek Flow Rates

Storm Event	Existing (cfs)	Proposed (cfs)
2 Year	30.3	30.2
10 Year	56.5	56.1
100 Year	1091.0	1051.6

PRESERVATION OF TREES AND NATURAL VEGETATION

The Board of Managers raised concern about the loss of natural vegetation and trees resulting from the proposed development. While the proposed development is consistent with the proposed zoning for the site and tree mitigation consistent with the City's tree ordinance will be provided, Brandl Anderson

agrees with the Managers' desire to preserve natural vegetation. Lot density reduction is not feasible due to Metropolitan Council density requirements for land development served by their sanitary sewer system. Therefore, modifications to the utility, grading and site design were made to reduce the cultivated lawn space and save an additional 11,800 square feet of natural vegetation and trees, bringing the total preserved space to over 1.3 acres as shown in the Figure 1 below. This results in reduced rates of runoff to the 168th Ave. storm sewer compared to the previous design and significantly reduced runoff from the site as a whole compared to the existing condition, see Tables 2 & 3, respectively. Additionally, the water quality is improved as shown in Table 4.

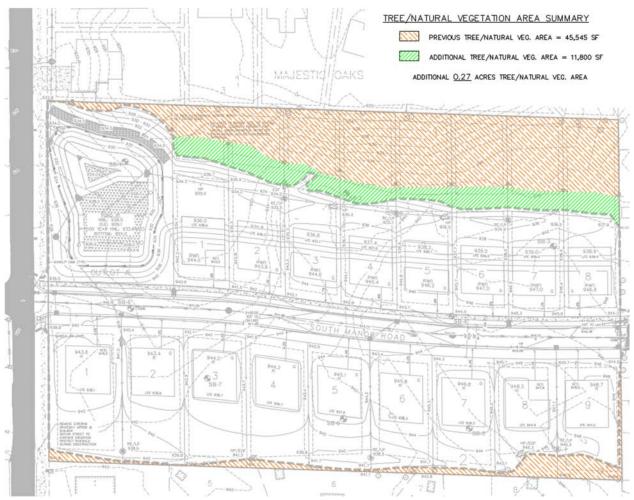


Figure 1

TABLE 2 – Reduced Rates to 168th Ave. Storm Sewer

Storm Event	Previous Design (cfs)	Updated Design with Additional Tree Preservation (cfs)
2 Year	1.16	1.14
10 Year	2.21	2.19
100 Year	3.55	3.50

TABLE 3 – Reduced Discharge Rates from the Site as a Whole

Storm Event	Existing Rates (cfs)	Updated Design with Additional Tree Preservation (cfs)
2 Year	12.18	2.69
10 Year	25.06	6.96
100 Year	52.01	14.86

TABLE 4 – Improved Water Quality

Pollutant	Allowed Per RPBCWD	Previous Design (cfs)	Updated Design with Additional Tree Preservation (cfs)
Annual TSS Discharge (lbs/yr)	646.3 (Existing)	143.6	131.5
Annual TP Discharge (lbs/yr)	2.2 (Existing)	2.2	2.2
Percent TSS Removal	90%	91.7%	92.5%
Percent TP Removal	60%	61.1%	61.9%

DOWNSTREAM FLOOD RISK

The site is restricted, meaning infiltration is not feasible. Rather, a biofiltration basin will provide water quality enhancements and minimal volume reduction via evapotranspiration. As a result, the high water levels (HWL) of offsite low areas will be affected by the proposed development. **Figure 2** shows the three regional low areas that are affected with the existing high water level inundation areas shown. All HWLs will remain the same or reduce for all critical events in the proposed condition with the exception of Low Area 6, which increases 0.1' during the 100-year event. This modified HWL will be contained within the existing public drainage and utility easement at Low Area 6. The existing and proposed HWLs are presented in **Table 5**.

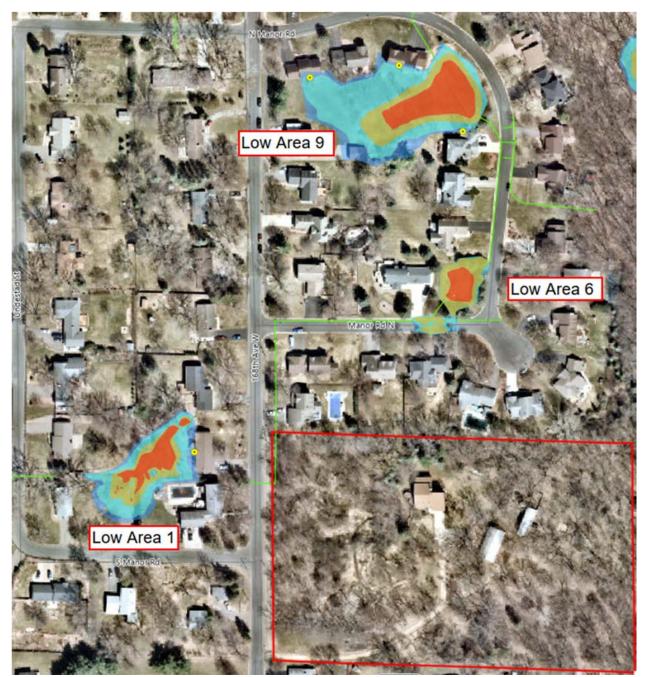


Figure 2 – Source: RPBCWD

TABLE 5 – Regional Low Area HWLs

Area 1	Existing	Proposed
2 Year HWL	929.7	929.7
10 Year HWL	930.1	930.1
100 Year HWL	931.9	931.8

Area 6	Existing	Proposed
2 Year HWL	911.7	910.6
10 Year HWL	913.7	913.7
100 Year HWL	913.9	914.0

Area 9	Existing	Proposed
2 Year HWL	905.3	904.9
10 Year HWL	907.8	907.1
100 Year HWL	910.6	910.3

The Managers expressed concern over the 0.1' increase in HWL that will occur on average once every 100 years. Multiple options for reducing the increase in HWL were studied and are listed below. Because the City of Eden Prairie will own and operate the stormwater facilities, Patrick Sejkora, the Water Resources Engineer for the City provided the City's opinion of the best management practices (BMP) considered in a letter dated May 20, 2024 that is presented in the appendix. The City does not believe the BMPs listed below are viable or impactful systems.

- 1. Stormwater reuse for irrigation Reuse was studied using both the Carver County Reuse Calculator and the Ramsey Washington Metro Watershed District Reuse Calculator. Both confirmed that the lack of drainage area available for the site means the reservoir would not have an adequate supply of water to feed the irrigation system. Therefore, municipal water would be needed to augment system. The City's concerns as presented in Mr. Sejkora's letter are quoted here:
 - Any contamination coming from the right-of-way (salt, automotive fluids, pet waste, etc.), which the City has little to no control over, would be collected in the reuse system then be discharged directly onto residential lawns for irrigation. This could spread pollutants onto private property and present a health risk.
 - The system would be difficult and expensive to maintain, especially since irrigation backup using public potable water would have to be provided for dry spells.
 - The system would be impossible to equitably maintain and operate as different residents may water at different rates based on personal preference. Thus, some residents may exploit the "free" water from reuse leaving other residents to utilize City water, thus creating an unequitable situation between neighbors that could lead to conflict.

It should also be noted that water reuse as a stormwater management technique provides little to no reduction in the 100-year runoff volume or runoff rate and thus would not reduce the

proposed HWL in Low Area 6. Additionally, the outlet of the reuse reservoir would route to the 168th Ave. storm sewer. Thus, the variance would still be required.

2. Rain Gardens – A series of small rain gardens distributed across the private lots was considered as a volume reduction technique. Per Mr. Sejkora's letter, rain garden BMPs would not be an effective option:

Public curbside rain gardens or private ones in the yards of the homes would have to include an underdrain system due to the non-infiltrating soils onsite. This would severely limit their benefit in terms of abstraction or rate control to the point their maintenance and upkeep considerations outweigh the benefit they provide. The only runoff reduction benefit of the rain gardens would be solely from evapotranspiration, which is likely negligible.

Similar to water reuse, the rain gardens would provide little to no reduction in the 100-year runoff volume or runoff rate and thus would not reduce the proposed HWL in Low Area 6. Additionally, the outlet of the system would route to the 168th Ave. storm sewer. Thus, the variance would still be required.

3. Tree Trenches – Tree trenches were considered early in the design process. The City does not allow boulevard trees and thus tree trenches are not feasible for this site. Per Mr. Sejkora:

The City as a practice does not plant new trees within the right-of-way to allow for the installation of public and private utilities. Thus, tree trenches are not a viable option for the extension of South Manor Road.

As with the other techniques considered, tree trenches provide little to no reduction in the 100-year runoff volume or runoff rate and thus would not reduce the proposed HWL in Low Area 6. Additionally, the outlet of the system would route to the 168th Ave. storm sewer. Thus, the variance would still be required.

4. Smart Pond – After the Board decision on 5/8/24, James R. Hill conferred with RPBCWD Staff to brainstorm ideas to address the concerns raised by the Managers. One of the ideas put forward by Staff was a "smart pond". This technique would involve a stormwater pond that is sized for live storage approximately equal to the 100-year runoff volume from the site. The outlet control structure would have an actuated valve that would remain closed throughout a rain event. The system would include a water sensor in the downstream storm sewer system. When that sensor reads that the downstream pipes are no longer flowing, the actuator would open the valve, allowing the stored runoff volume to drain downstream after the peak flow has passed through the system. If properly calibrated, it is feasible that such a system could reduce the 0.1' increase in HWL in Low Area 6. Unfortunately, this system could not accommodate an underdrain. Without filtration, the basin would not meet the water quality requirement. The large storage volume required would result in more land disturbance, significantly reducing the preserved vegetation and trees which would further degrade water quality. Also, the complexity of the system could be prone to failure, as it would require power to actuate the valve and would depend on reliable communication with the downstream sensors. Should the system fail, the next rain event would discharge over the emergency overflow, which would

provide no rate control, resulting in significantly increased flooding potential downstream. The City's concerns with this BMP are quoted here:

- Such a system would function best if routed directly to a larger water body with more storage like a lake or creek system as the City's current stormwater lift station on Preserve Boulevard does. By routing the water to a large public water body, the increased stages from the release of water is attenuated with minimal impacts to private property. However, in this case, the water would be routed to several small ponds within private property in residential neighborhoods. The smart pond system would have to be calibrated to ensure that releases from the basin could be routed through these ponds in such a way that it wouldn't adversely impact the private property around the homes in each of these ponds, which will be unfeasibly costly and difficult to do.
- Such a system would be expensive, complex, and intensive to maintain. It (would) likely require instrumentation and power at several downstream ponds that would need to be kept working at all times in order for the system to function properly.

VARIANCE AVOIDANCE

Options for avoiding the need of the variance were considered. The variance is necessary because the proposed stormwater basin outlet routes to storm sewer in 168th Ave. Therefore, alternative outlet routing options were considered and are described below. It should be noted that all options considered will increase the HWL of Low Area 6 approximately 0.1' in the 100-year event.

- 1) Long Weir Wall Outlet This BMP would involve a long stormwater basin along the north boundary of the site. Please refer to the exhibit in the appendix. The basin would be sized to provide the required rate control and the outlet would be a long weir wall extending most of the east-west width of the site. The discharge from this BMP would be designed to sheet flow to the north, mimicking the existing flow to the properties to the north. Unfortunately, a weir wall outlet does not accommodate an underdrain filtration system. Thus, the water quality requirement would not be met by this option. Also, nearly all the preserved vegetation and trees would be destroyed to construct the BMP, further reducing water quality. There is also concern of the potential for concentrated flow occurring due to minor imperfections in the weir wall. The City has several concerns with this BMP:
 - Uniform grading and vegetation establishment of an earthen berm several hundred feet in length does not seem feasible.
 - Any inevitable minor settlement, cracking, or sloughing of the berm would result in concentrated flow, which would result in erosion or drainage problems for the downstream private properties.
 - The basin would have to extend along the entirety of the north side of the parcel, resulting in additional tree loss.
 - Maintenance of such a weir would not be feasible for City staff due to the challenging access and the constant need to keep a uniform berm elevation along several hundred feet.
 - The City is not aware of any BMPs similar to this within the City or elsewhere that are designed to have a primary overflow of a weir directly onto private property.

- 2) Long Rock Trench Outlet This BMP would involve a long trench filled with riprap extending most of the east-west width of the site. Please refer to the exhibit in the appendix. The BMP would be downstream of a stormwater basin that would provide rate control, water treatment and volume abstraction. A perforated outlet pipe from the stormwater basin would run down the bottom of the rock trench. Water would distribute throughout the rock trench, filling it and overflowing to the north. The discharge from this BMP would be sheet flow, mimicking the existing flow to the properties to the north. As with the long weir wall, concentrated flow and erosion is a concern. Settling of the soil is inevitable, which could result in unequitable flow to an individual property to the north, creating erosion and safety issues. The City has several concerns with this BMP:
 - Uniform grading of a rock trench several hundred feet in length does not seem feasible, and any minor variations in elevation along the trench would result in concentrated flows on private property.
 - The rock trench would be frozen during the winter. Thus, the basin would effectively have a plugged outlet during all subfreezing conditions. This would create significant issues if there is rain or freeze/thaw during winter, including damage to the basin or surrounding property (extended detention that could kill vegetation or damage the basin, water rising to the point of the emergency overflow, etc).
 - The rock trench would be extremely difficult if not impossible to maintain. It would have to be kept free of weeds and vegetation, requiring extensive maintenance and use of herbicides. Any sedimentation within the trench would be nearly impossible to remove without full removal and replacement of the perforated pipe and rock.
 - As with the long weir wall outlet BMP, the trench and its associated maintenance access would have to extend along the entirety of the north side of the parcel, resulting in additional tree loss.
 - The aesthetics of the trench are problematic.
 - The City is not aware of such a system within the City or elsewhere. It is unknown how the trench would respond to large magnitude storms with significant flow rates leaving the site.

CONCLUSION

In response to the Board of Managers' concerns, Brandl Anderson and James R. Hill revised the plan to preserve over 1.3 acres of natural vegetation and trees. This further improves rate control, water quality and volume control. The rate discharging to Purgatory Creek will reduce in the proposed condition for all critical rain events and flooding potential is reduced in two off-site areas – Low Areas 1 & 9 – that have been identified by the City as flood prone. We appreciate the careful consideration RPBCWD has shown our development and the improved product that resulted for all stake holders.

APPENDIX

- City of Eden Prairie 5/20/24 Letter
- Long Weir Wall Outlet Exhibit
- Long Rock Trench Outlet Exhibit



OFC **952 949 8300** FAX **952 949 8390** TDD **952 949 8399**

8080 Mitchell Rd Eden Prairie, MN 55344-4485

edenprairie.org

May 20, 2024

John Bender James R. Hill, Inc. 2999 County Road 42 W, Suite 100 Burnsville, MN 55306

RE: The Enclave at Manor Road Stormwater Management

Dear Mr. Bender:

The City of Eden Prairie has reviewed several alternatives to the stormwater management for the proposed Enclave at Manor Road development that could mitigate the variance with the Riley Purgatory Bluff Creek Watershed District. Each of these best management practice (BMP) alternatives are listed below along with concerns the City has regarding the feasibility of their construction, functionality, and maintenance. Ultimately, the City does not believe the BMPs summarized below are viable or impactful systems that the City would own and maintain.

Smart Pond

The Smart Pond BMP is a wet pond with a mechanism within the outlet could allow for the system to retain and release water based on anticipated magnitude of storm events in a highly controlled manner. Thus, using forecasting, it could release water to an elevation below the normal water level prior to a rain event to allow for more retention for the event.

The City has several concerns with a smart pond for the proposed development:

- Such a system would function best if routed directly to a larger water body with more storage like a lake or creek system as the City's current stormwater lift station on Preserve Boulevard does. By routing the water to a large public water body, the increased stages from the release of water is attenuated with minimal impacts to private property. However, in this case, the water would be routed to several small ponds within private property in residential neighborhoods. The smart pond system would have to be calibrated to ensure that releases from the basin could be routed through these ponds in such a way that it wouldn't adversely impact the private property around the homes in each of these ponds, which will be unfeasibly costly and difficult to do.
- Such a system would be expensive, complex, and intensive to maintain. It likely require instrumentation and power at several downstream ponds that would need to be kept working at all times in order for the system to function properly.

Long Weir Well Outlet

This BMP would utilize a long linear basin on the north side of the Development that would not have a piped outlet connected to City storm sewer. Rather, a long weir with a uniform elevation would allow any overflows to sheet flow through the properties to the north and into the storm system along North Manor Road.

The City's concerns with this approach are:

- Uniform grading and vegetation establishment of an earthen berm several hundred feet in length does not seem feasible.
- Any inevitable minor settlement, cracking, or sloughing of the berm would result in concentrated flow, which would result in erosion or drainage problems for the downstream private properties.
- The basin would have to extend along the entirety of the north side of the parcel, resulting in additional tree loss.
- Maintenance of such a weir would not be feasible for City staff due to the challenging access and the constant need to keep a uniform berm elevation along several hundred feet.
- The City is not aware of any BMPs similar to this within the City or elsewhere that are designed to have a primary overflow of a weir directly onto private property.

Long Rock Trench Outlet

This BMP itself would function similarly to previously proposed filtration basin. However, instead of the outlet pipe connecting directly into City storm sewer, it would be directed to a perforated pipe running within a rock trench along the entirety of the north side of the development. Head from the basin would then force water from the basin up through the perforated pipe and rock to sheet flow to the properties to the north.

The City's concerns with this approach are:

- Uniform grading of a rock trench several hundred feet in length does not seem feasible, and any
 minor variations in elevation along the trench would result in concentrated flows on private
 property.
- The rock trench would be frozen during the winter. Thus, the basin would effectively have a plugged outlet during all subfreezing conditions. This would create significant issues if there is rain or freeze/thaw during winter, including damage to the basin or surrounding property (extended detention that could kill vegetation or damage the basin, water rising to the point of the emergency overflow, etc).
- The rock trench would be extremely difficult if not impossible to maintain. It would have to be kept free of weeds and vegetation, requiring extensive maintenance and use of herbicides. Any sedimentation within the trench would be nearly impossible to remove without full removal and replacement of the perforated pipe and rock.
- As with the long weir wall outlet BMP, the trench and its associated maintenance access would have to extend along the entirety of the north side of the parcel, resulting in additional tree loss.
- The aesthetics of the trench are problematic.
- The City is not aware of such a system within the City or elsewhere. It is unknown how the trench would respond to large magnitude storms with significant flow rates leaving the site.

Stormwater Reuse

This BMP would utilize runoff collected from the Site and stored in a reservoir for irrigation of the private homes within the development. Since much of the runoff would come from the right-of-way and there is no home owners association planned for the development, the reservoir would be maintained by the City.

The City has several concerns with this BMP:

- Any contamination coming from the right-of-way (salt, automotive fluids, pet waste, etc.), which the City has little to no control over, would be collected in the reuse system then be discharged directly onto residential lawns for irrigation. This could spread pollutants onto private property and present a health risk.
- The system would be difficult and expensive to maintain, especially since irrigation backup using public potable water would have to be provided for dry spells.
- The system would be impossible to equitably maintain and operate as different residents may water at different rates based on personal preference. Thus, some residents may exploit the "free" water from reuse leaving other residents to utilize City water, thus creating an unequitable situation between neighbors that could lead to conflict.

Rain gardens

Public curbside rain gardens or private ones in the yards of the homes would have to include an underdrain system due to the non-infiltrating soils onsite. This would severely limit their benefit in terms of abstraction or rate control to the point their maintenance and upkeep considerations outweigh the benefit they provide. The only runoff reduction benefit of the rain gardens would be solely from evapotranspiration, which is likely negligible.

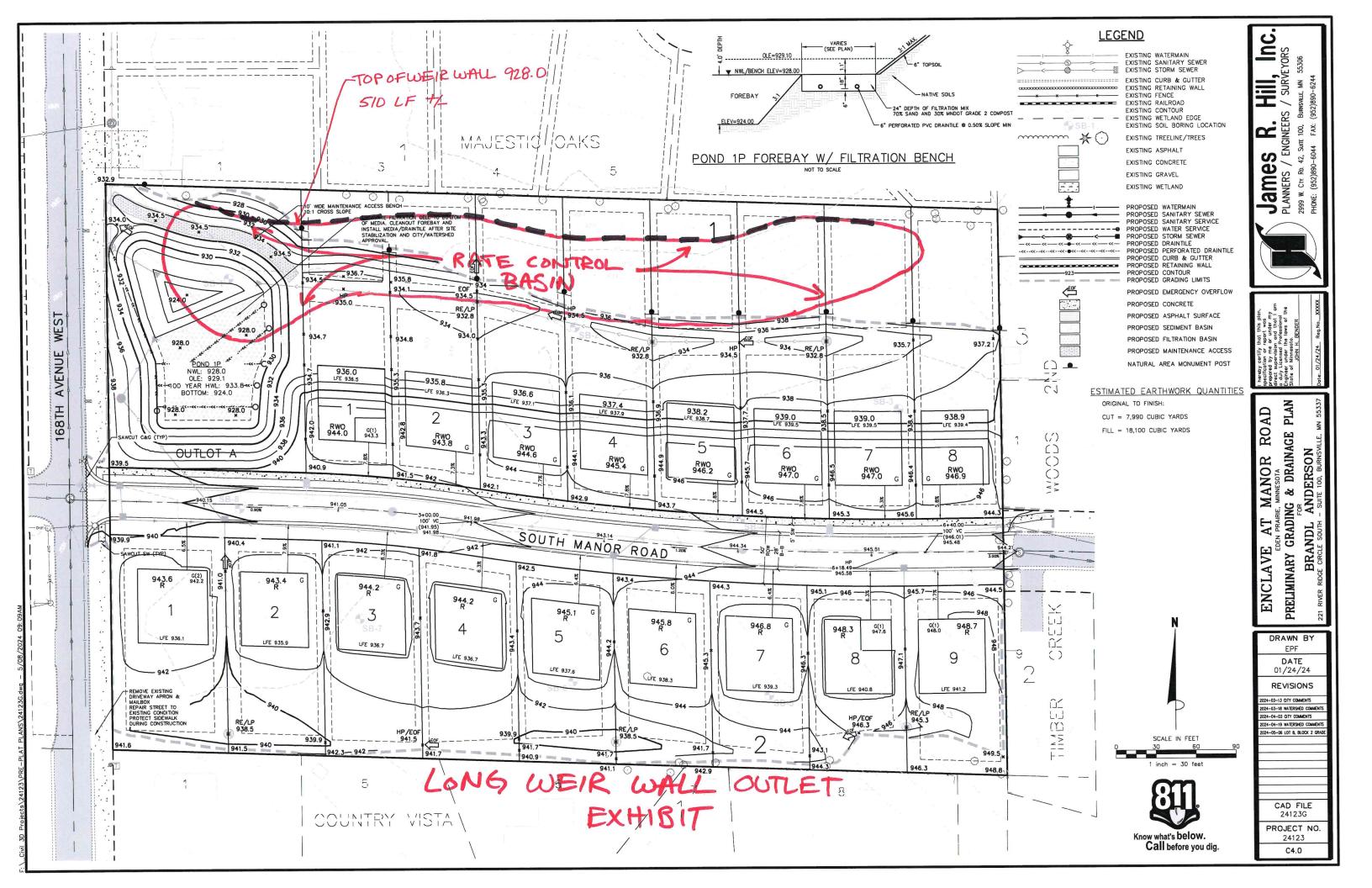
Tree Trenches

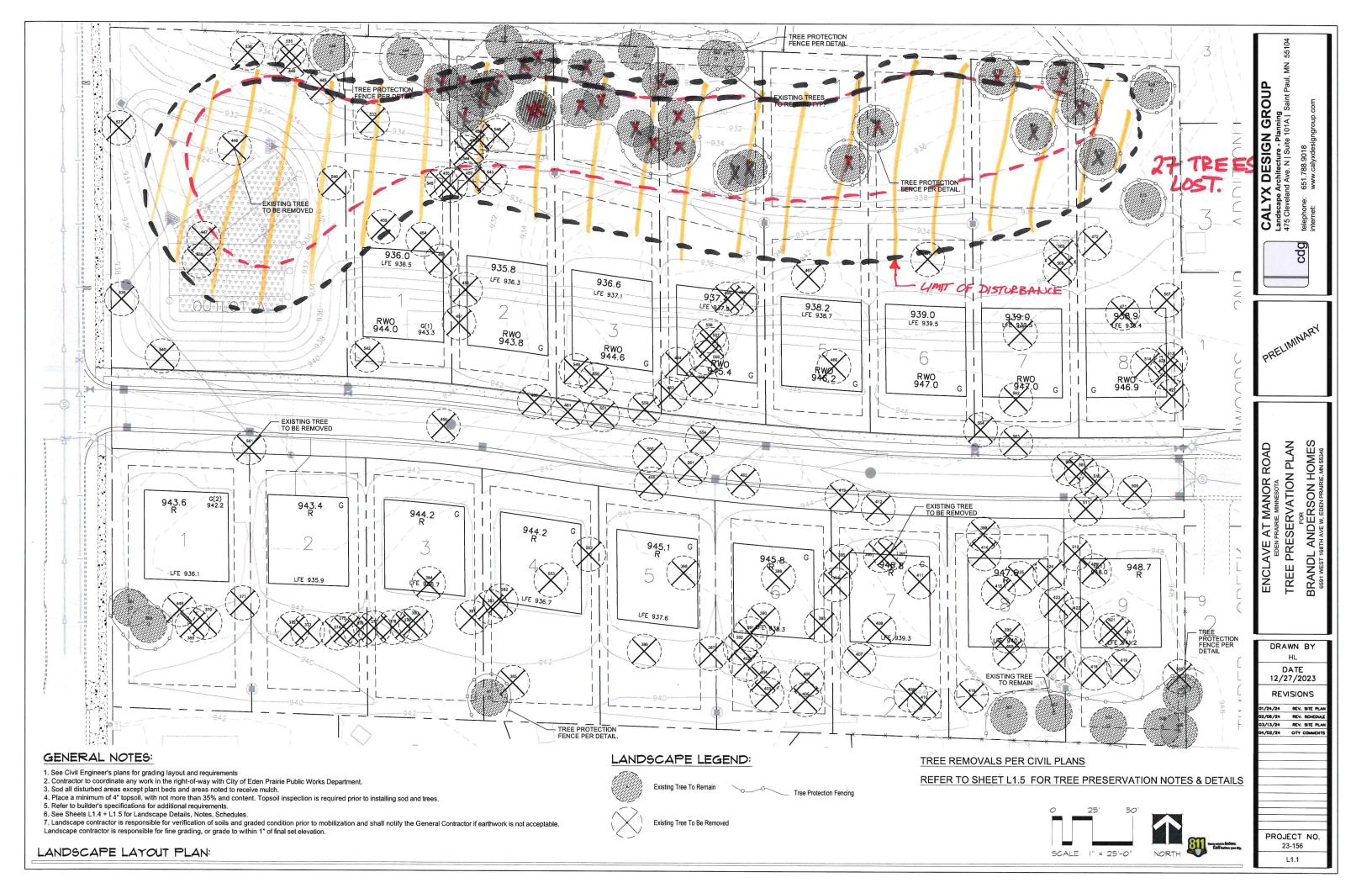
The City as a practice does not plant new trees within the right-of-way to allow for the installation of public and private utilities. Thus, tree trenches are not a viable option for the extension of South Manor Road.

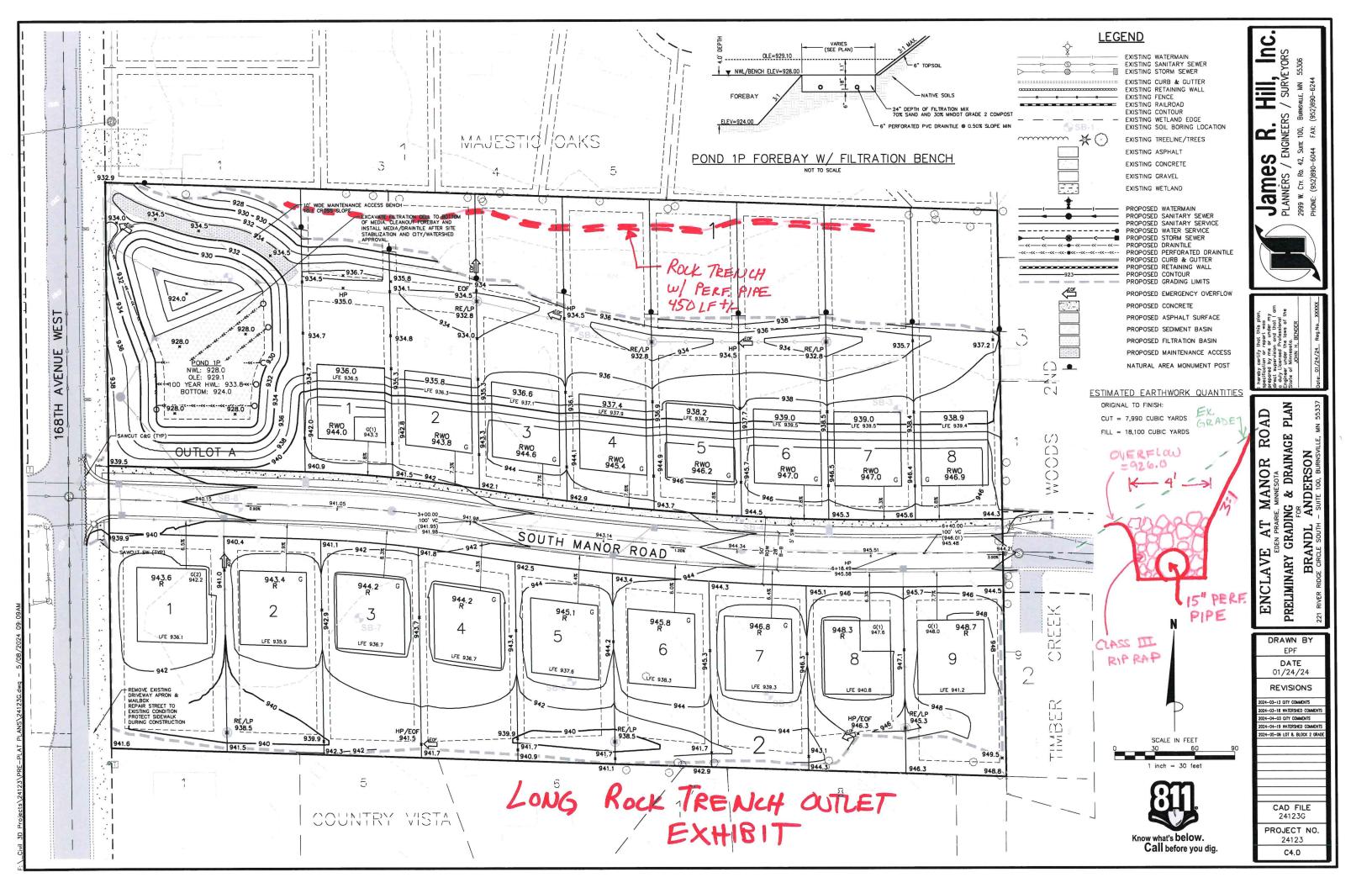
Regards,

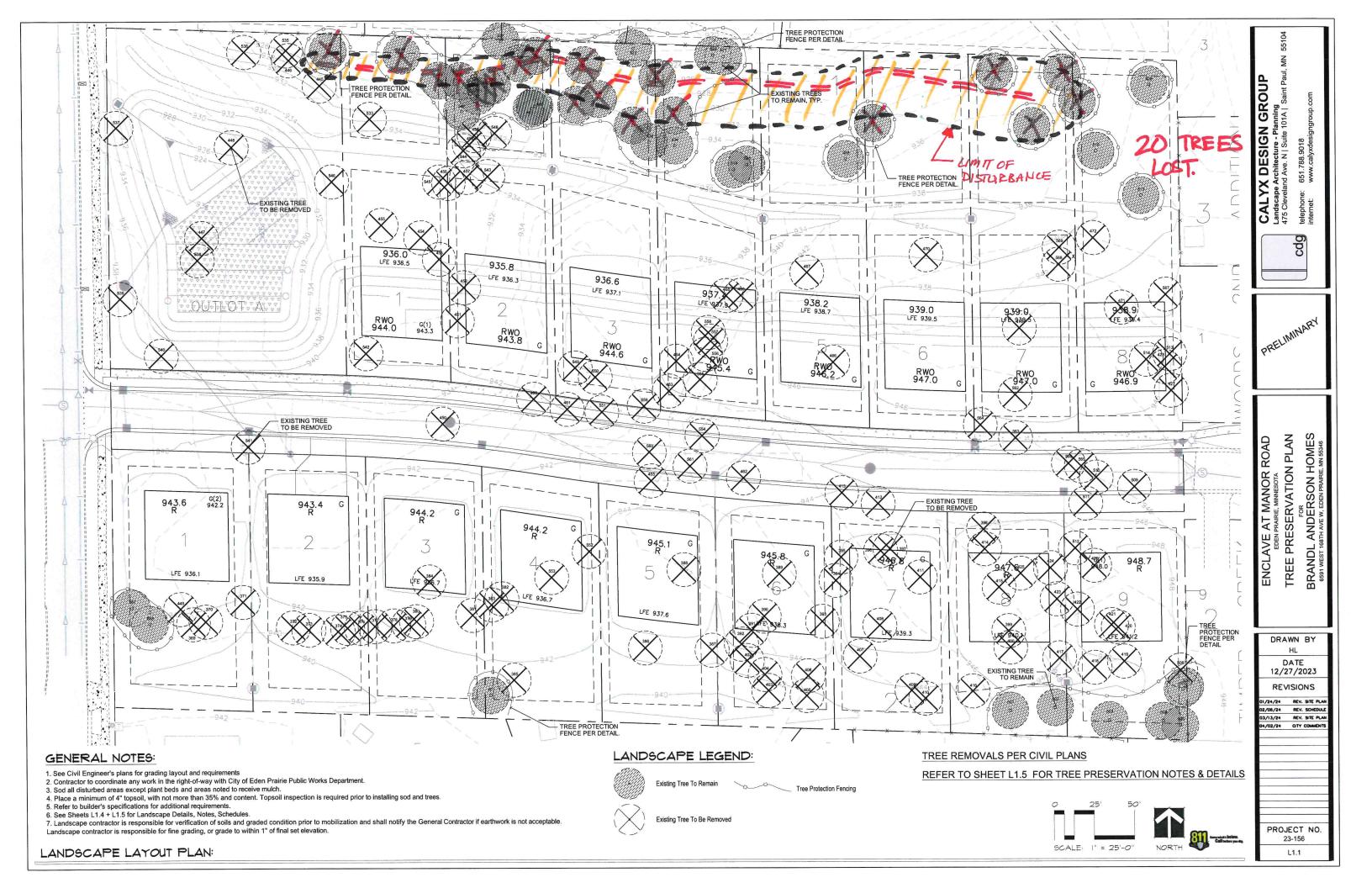
Patrick Sejkora, PE (MN # 53713)

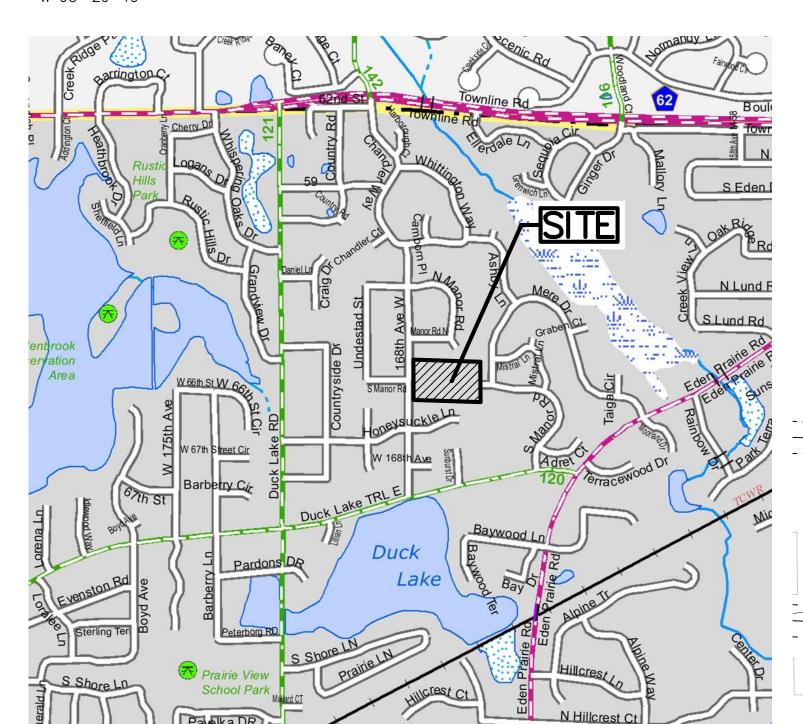
Water Resources Engineer











LOCATION MAP

1" = 1000'

SITE DATA

LOTS 17 LOTS 6.43 AC. TOTAL SITE AREA LOT AREA 4.96 AC. OUTLOT AREA 0.70 AC. RIGHT OF WAY AREA 0.77 AC. 2.64 LOTS/AC GROSS DENSITY

EXISTING ZONING IS RURAL PROPOSED ZONING IS R1-9.5 (PUD)

65 FEET MINIMUM LOT WIDTH PROVIDED 136 FEET MINIMUM LOT DEPTH PROVIDED 9,921 S.F. MINIMUM LOT AREA PROVIDED AVERAGE LOT AREA 12,707 S.F.

MINIMUM BUILDING SETBACKS

REAR

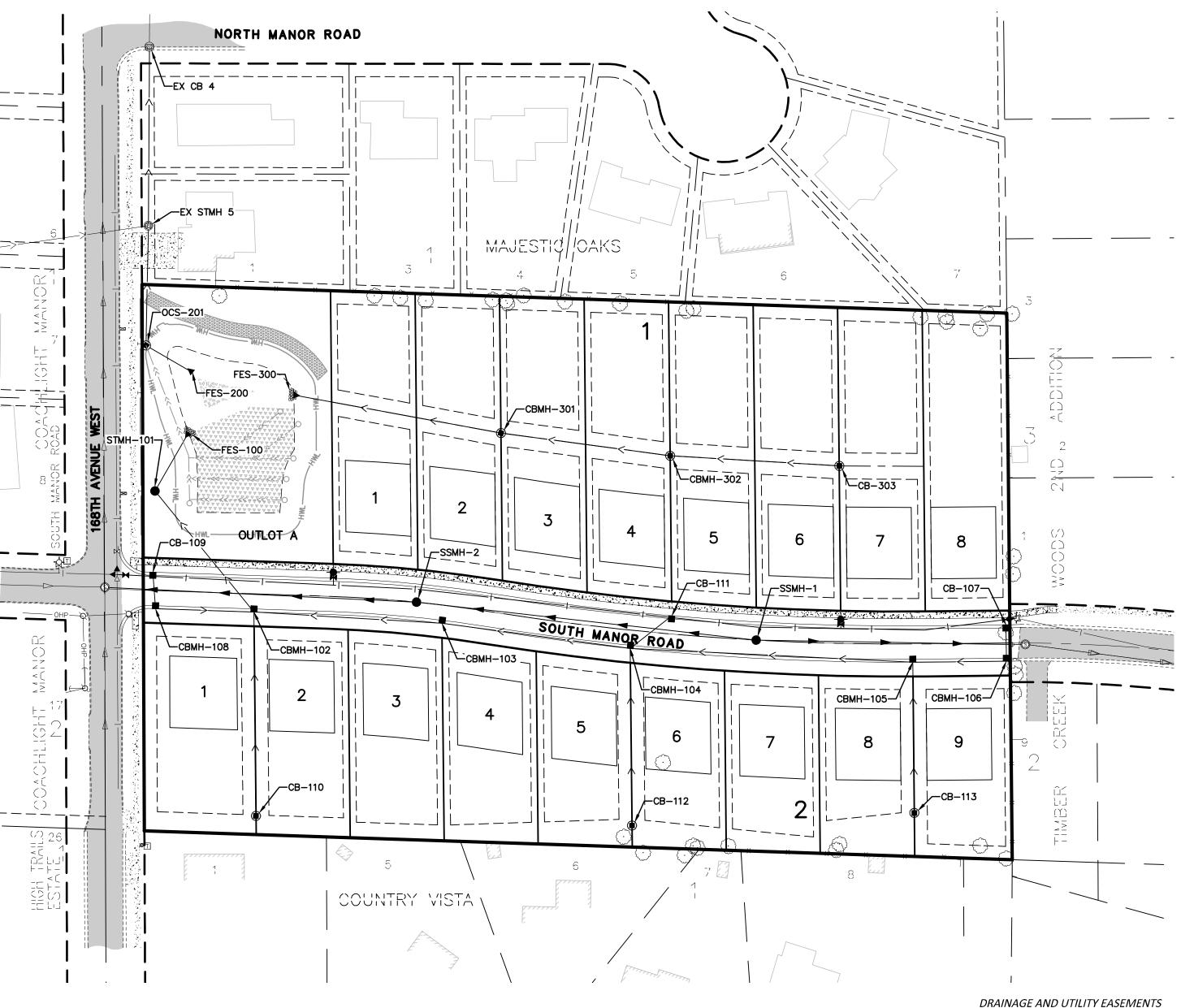
25 FEET SIDE YARD (INTERIOR) 5 FEET MINIMUM 15 FEET TOTAL OF BOTH SIDES SIDE YARD (STREET) 20 FEET ENCLAVE AT MANOR ROAD

EDEN PRAIRIE, MINNESOTA

PRELIMINARY PLAT

BRANDL ANDERSON

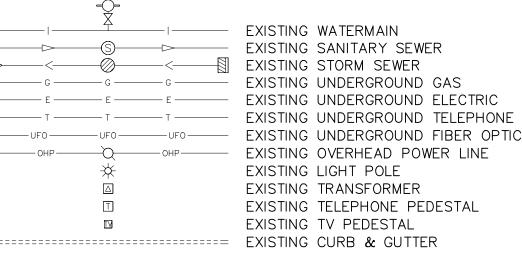
RIVER RIDGE CIRCLE SOUTH - SUITE 100, BURNSVILLE, MN 55337 PHONE: (952) 898-0230



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EXISTING TREELINE/TREES

EXISTING ASPHALT EXISTING CONCRETE

PROPOSED CONTOUR PROPOSED GRADING LIMITS

PROPOSED EMERGENCY OVERFLOW

PROPOSED CONCRETE

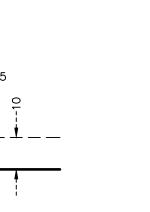
PROPOSED ASPHALT SURFACE

PROPOSED SEDIMENT BASIN PROPOSED INFILTRATION BASIN

PROPOSED SILT FENCE PROPOSED WIMCO

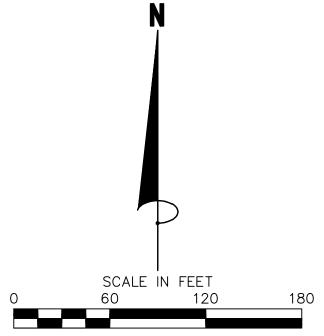
POST STORM SEWER CONSTRUCTION PROPOSED YARD CB INLET PROTECTION POST STORM SEWER CONSTRUCTION PROPOSED DITCH CHECK - MnDOT TYPE 3 POST GRADING/UTILITY CONSTRUCTION PROPOSED TEMPORARY ROCK CONSTRUCTION ENTRANCE PROPOSED EROSION CONTROL BLANKET

MnDOT CATEGORY 3 PROPOSED SEED & MULCH MIX NATIVE PONDS & WET AREAS MnDOT 33-261



ARE SHOWN THUS:

DRAINAGE AND UTILITY EASEMENTS BEING 5 FEET IN WIDTH, UNLESS OTHERWISE INDICATED, ADJOINING LOT LINES, AND Know what's below. BEING 10 FEET IN WIDTH, UNLESS OTHERWISE INDICATED, ADJOINING RIGHT Call before you dig. OF WAY LINES, AS SHOWN ON THIS PLAT.



1 inch = 60 feet

PROJECT CONTACTS

PROJECT ENGINEER: DEVELOPER: CITY ENGINEER: NPDES OFFICER: GENERAL CONTRACTOR REPRESENTATIVE:

JOHN BENDER, P.E. - JAMES R. HILL, INC. MATT OLSON - BRANDL ANDERSON CARTER SCHULZE - EDEN PRAIRIE JOSH NORMAN - MPCA

20 FEET

952-890-6044 (0)

952-898-0230 (0) 952-949-8339 (0) 951-757-2389 (0)

EXISTING GRAVEL

ΛE

BR

DRAWN BY EPF

DATE

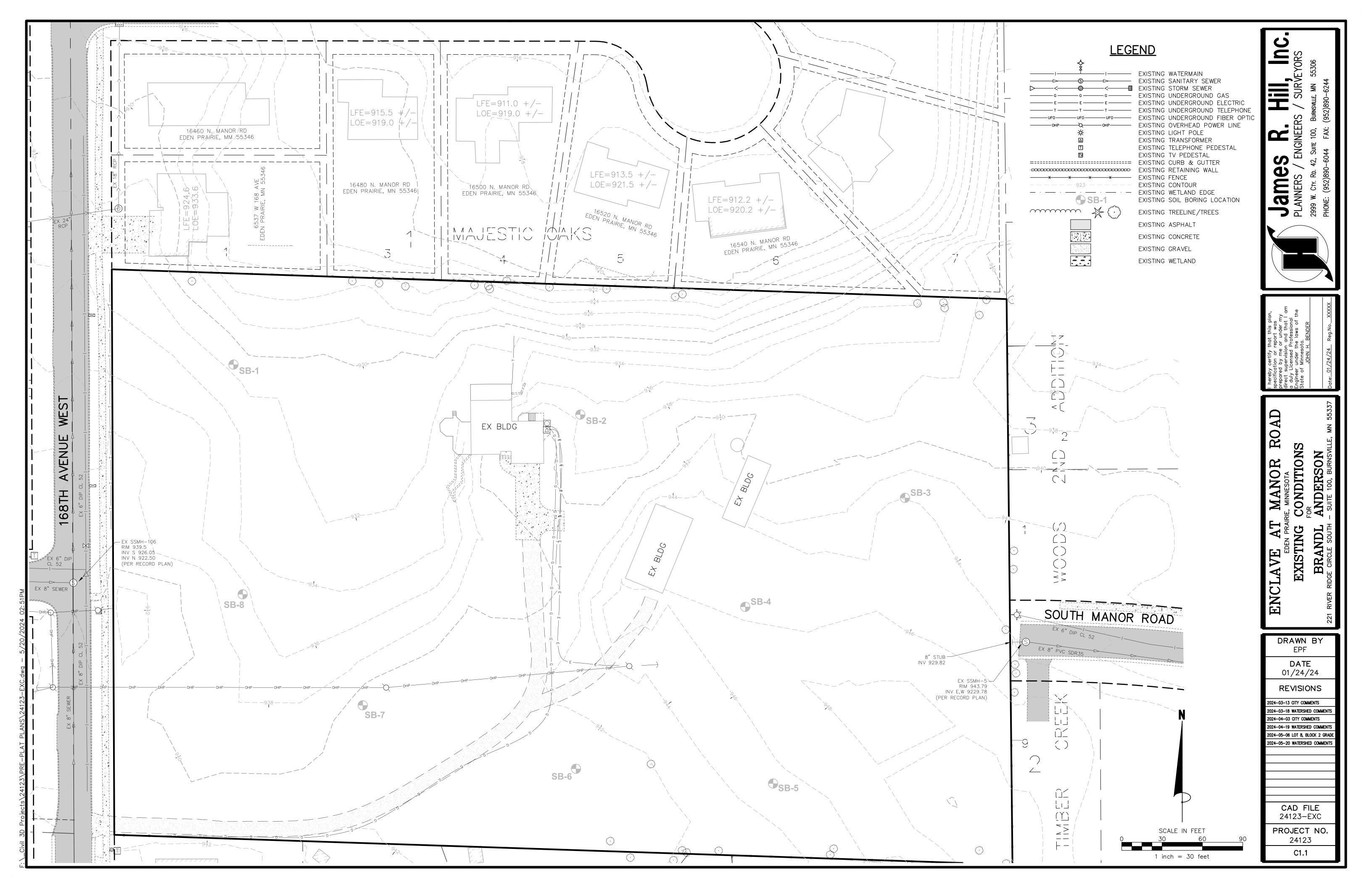
01/24/24 **REVISIONS**

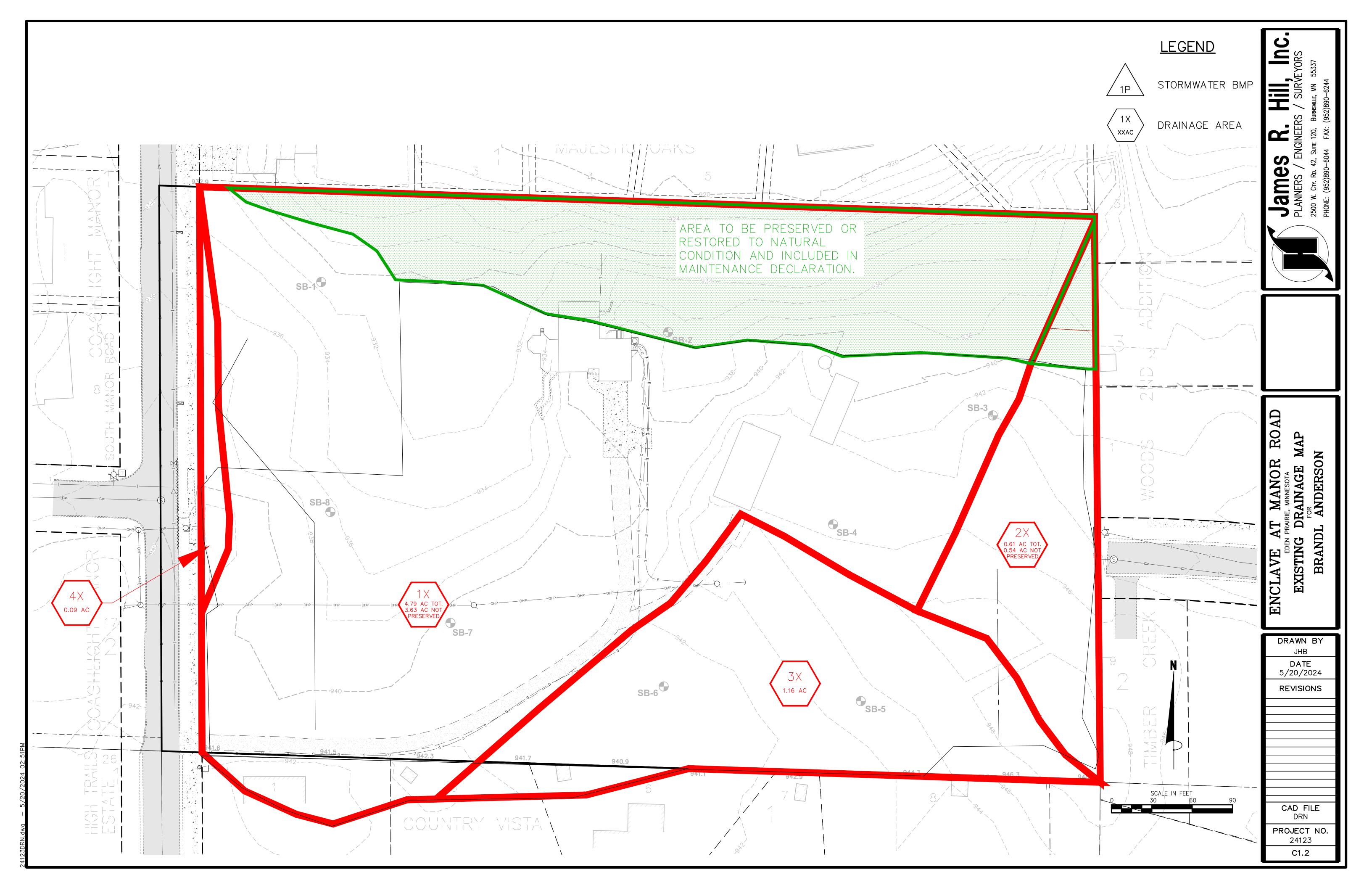
024-03-13 CITY COMMENTS 2024-03-18 WATERSHED COMMENTS 2024-04-03 CITY COMMENTS 024-04-19 WATERSHED COMMENTS 2024-05-06 LOT 8, BLOCK 2 GRADE 2024-05-20 WATERSHED COMMENTS

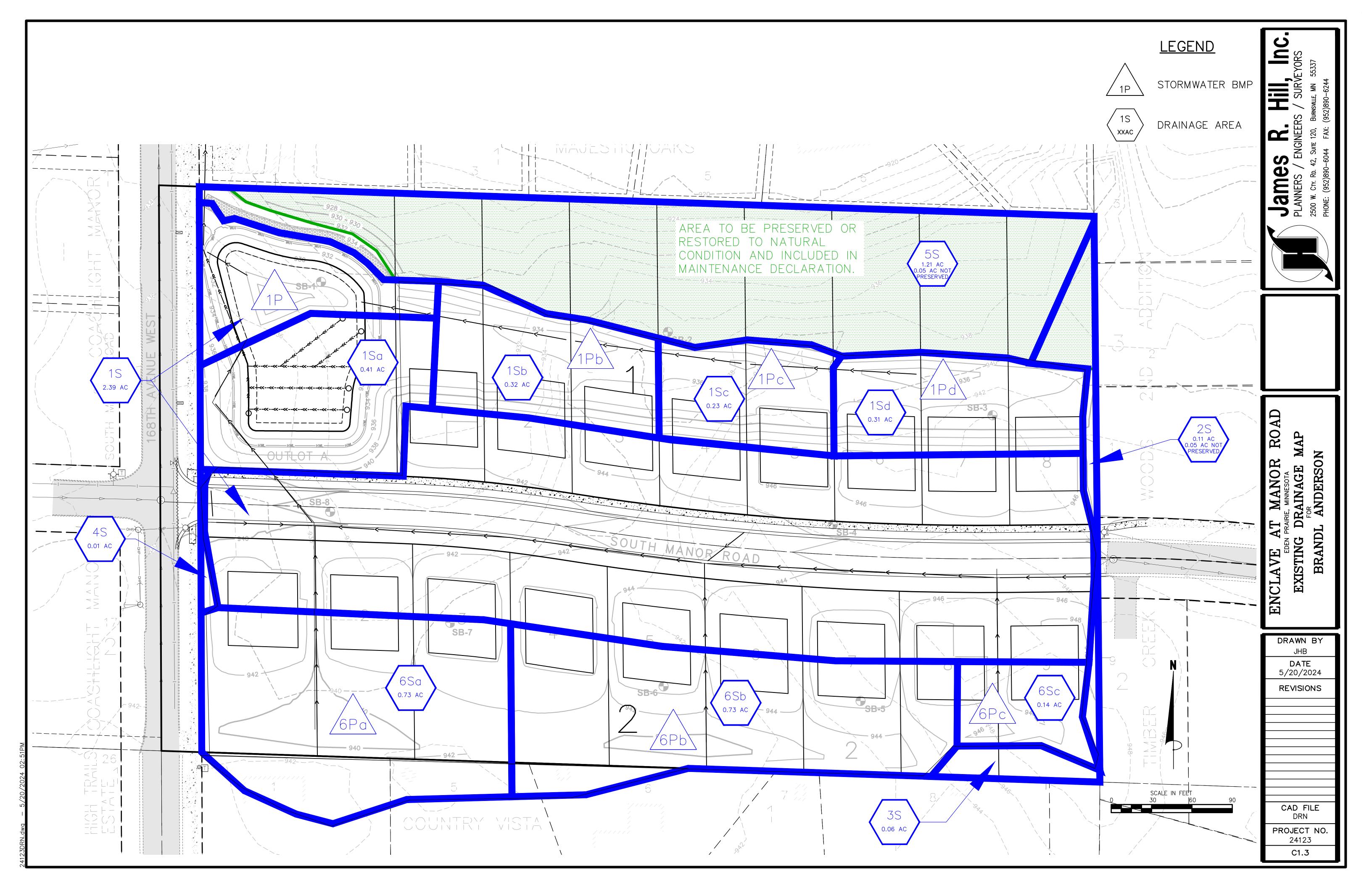
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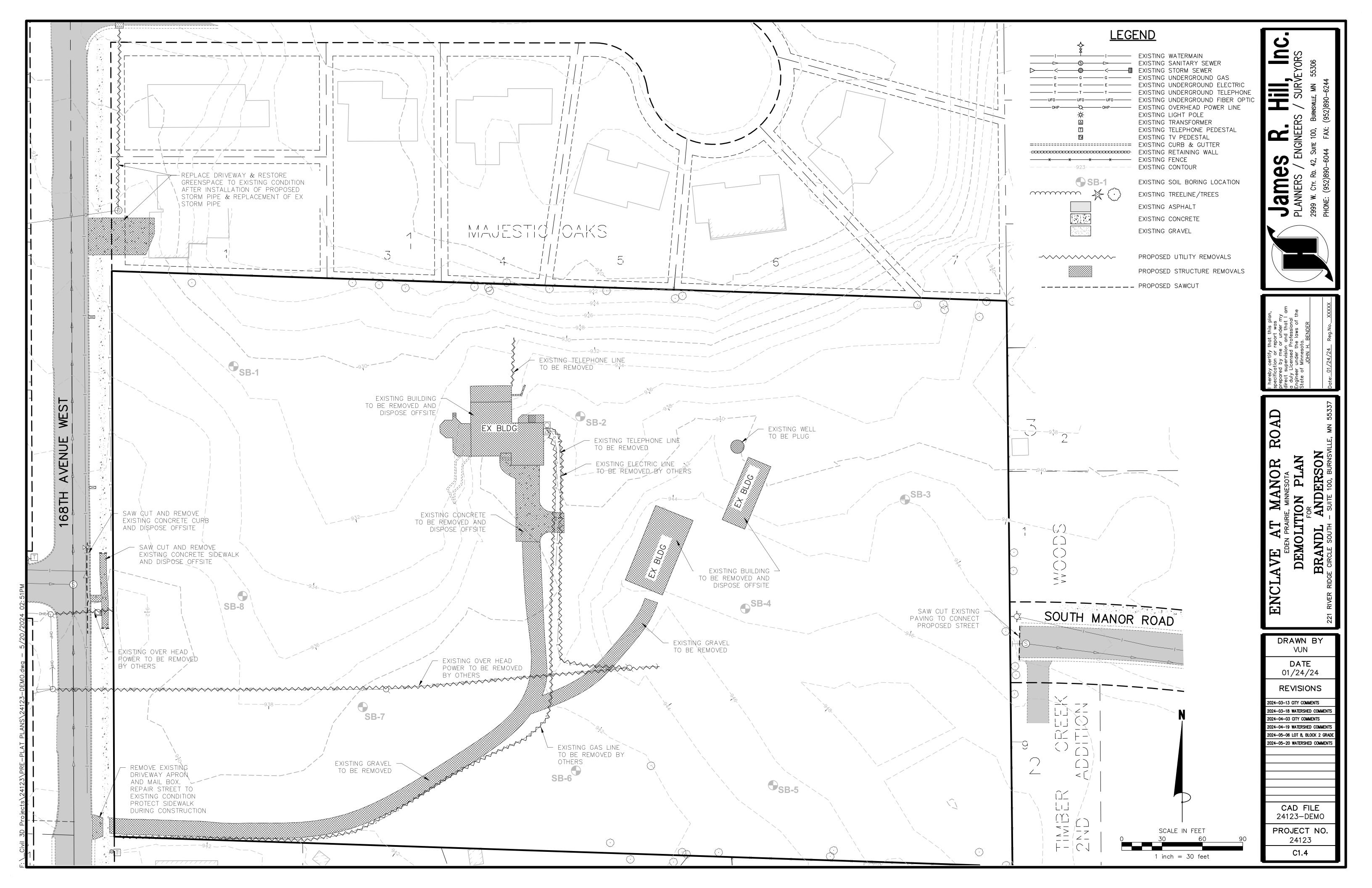
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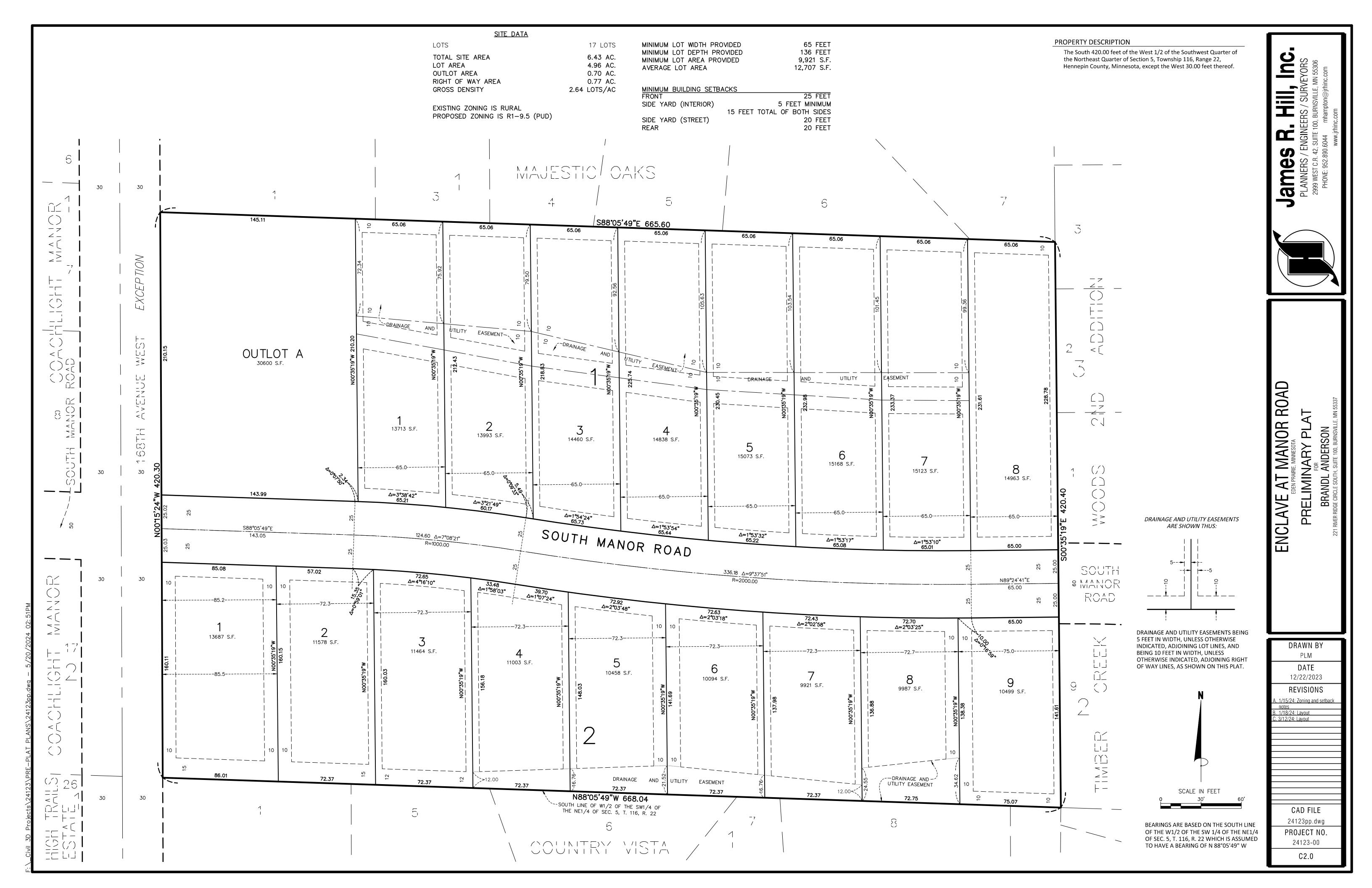
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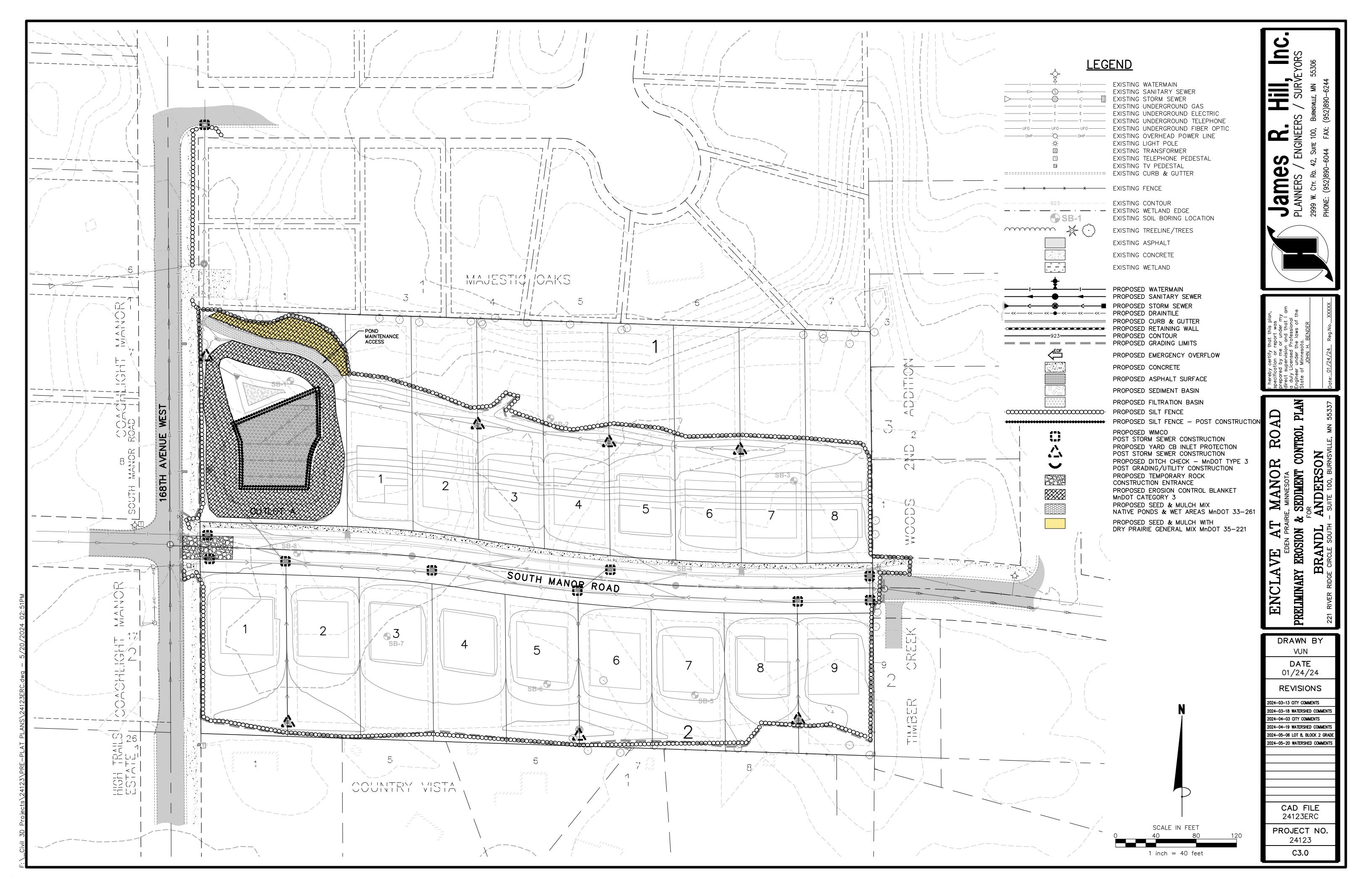












PROPOSED (DESIGN) IMPERVIOUS AREA:

TYPE OF PROJECT: SINGLE FAMILY RESIDENTIAL

TYPE OF WORK: Mass Grading, Utility and Street Construction, Paving. Subsequently, Joint Trench and Home construction will

TOTAL PLATTED AREA: 6.43 AC

EXISTING IMPERVIOUS AREA: 0.14 AC

SPECIAL WATERS: The site is within a 1-mile radius of Round Lake However this site does not drain to it.

5.16 AC

1.96 AC

CONSTRUCTION PHASING

TOTAL DISTURBED AREA:

The project is expected to be constructed in three phases, with mass grading occurring during one construction season. Mass grading is anticipated to be completed within 4 weeks from commencement of work. Utility and street construction is anticipated to be completed within 4 weeks from commencement of work.

POTENTIONAL FOR EROSION AND DISCHARGE OF SEDIMENT As the site will be stripped of topsoil and vegetation for a period of several weeks during construction, the potential for erosion will increase. The overall gradients on the site are relatively low. The street subcut will serve as temporary sediment basins during construction. The project is primarily cut, and therefore perimeter erosion will flow inward towards the project.

The risk of discharge of sediment off of the site is low, due to the grade orientation and design. The highest potential for discharge off during the phases of construction. the site is from the street entrance.

Contractor will be required to manage completion of 3:1 slopes such that soil exposure is minimized. After excavation and embankments are completed, slopes shall be re-spread with topsoil, the slope grades certified, and erosion blanket installed as per the plan. Contractor shall coordinate these steps to be carried out in a timely manner.

EROSION CONTROL BMPs

The construction plans anticipate the use of, but are not limited to, the following Erosion Control BMPs:

- 1. Perimeter delineation to minimize disturbed areas
- 2. Temporary Rock Construction Entrance 3. Temporary straw mulch as needed.
- 4. Seed and mulch/sod
- 5. Erosion Control Blanket
- 6. Minimize active or disturbed work areas
- 7. Horizontal slope grading 8. Turf Reinforcement Mat

SEDIMENT CONTROL BMPs

The construction plans anticipate the use of, but are not limited to, the following Sediment Control BMPs

- 1. Sediment traps constructed in street subcut 2. Rock filter dikes in street subcut
- 3. Utilize permanent stormwater basin as Temporary Sediment
- 4. Silt Fence at project perimeter or toe of slopes 5. Inlet protection on existing catch basins
- 6. Inlet protection on existing culverts
- 7. Inlet protection after utility construction 8. Linear control along back of new curb and gutter (sod, bioroll, or
- silt fence) Routine street sweeping adjacent to construction entrance
- 10. Ditch checks

Refer to plans for designated locations of BMPs, details and implementation notes.

BASIN AND TRAP DEWATERING BMPs Should the need arise for basin or trap dewatering, contractor shall

utilize a floating skimmer pump intake, such that the water is drawn from the surface of the basin. Pumped effluent shall not be discharged into Surface Waters in a turbid state. Turbid effluent shall be filtered with mechanical devices, chemical filtering, or a combination thereof, to a state of 50 NTUs or less.

RPBC WD NOTES:

- Natural topography and soil conditions will be protected, including retention onsite of native topsoil to the greatest extent
- Soil surfaces compacted during construction and remaining pervious upon completion of construction will be de-compacted
- a soil compaction testing pressure of less than 1,400 kilopascals or 200 pounds per square inch in the upper 12 inches of soil or
- a bulk density of less than 1.4 grams per cubic centimeter or 87 ADDITIONAL SWPPP NOTES pounds per cubic foot in the upper 12 inches of soil.
- In addition, utilities, tree roots and other existing vegetation will be protected until final revegetation or other stabilization of the
- The permittee will inspect all erosion prevention and sediment control facilities and soil stabilization measures to ensure integrity and effectiveness. The permittee will repair, replace or supplement all nonfunctional BMPs with functional BMPs within 48 hours of discovery and prior to the next precipitation event unless adverse conditions preclude access to the relevant area of the site, in which case the repair must be completed as soon as conditions allow. When active land-disturbing activities are not under way, the permittee will perform these responsibilities at least weekly until vegetative cover is established. The permittee will maintain a log of activities under this section for inspection by the District on request.

STABILZATION BMPs

The construction plans anticipate the use of, but are not limited to, the following Stabilization BMPs:

- 1. After lot pads are grade certified, permanent seed and mulch can be applied, generally from the front of the building pad, extending to the rear of the lot (areas where on ice or snow greater than 2" in depth.
- no further utility construction is anticipated.) 2. After 3:1 slopes on lots are certified, permanent seed and erosion control blanket can be applied.
- 3. Rip rap at pipe outfalls 4. Permanent seed and erosion control blanket on basin
- slopes after grade certified. 5. After curbs are backfilled, apply permanent seed and

mulch to remaining building pads and boulevard area not

already stabilized. 6. Sod placement, as appropriate.

POLLUTION CONTROL BMPs

- 1. Fueling: A fixed fueling station is not anticipated. Contractor will be required to implement BMPs for onsite
- re-fueling of equipment. 2. Concrete Washout: A suggested washout area will be specified on the plan. The developer has the ability to
- containment. 3. There is not an anticipated need for storing chemicals, paints, solvents or other potentially toxic or hazardous materials on site.

adjust location or to provide alternative washout

SEED & MULCH SPECIFICATIONS

Seed placed for permanent cover or final stabilization requires 6" minimum topsoil cover. Topsoil must contain at least 5.0% organic content. Exception: Infiltration basins - see basin details for soil type. Multiple site visits will be required to accommodate permanent or temporary stabilization as required MPCA COMPLIANCE: JOSH NORMAN - MPCA - 651-757-2389

(1) General Seed & Mulch

- A. Seed: MNDOT 25-141 at a rate of 59 lb/acre B. Fertilzer: Type 3 slow release 10-10-10 at a rate of 200
- lb/acre C.Mulch: MNDOT Type 1 at a rate of 2 tons/acre (2)Temporary Cover Crop (Ponding/Infiltration/Adjacent Slope
- A. Seed: MNDOT 21-112 at a rate of 100 lb/acre
- B. Fertilzer: Type 3 slow release 10-10-10 at a rate of 200 lb/acre
- C.Mulch: MNDOT Type 3 at a rate of 2 tons/acre (3)Hydro-Seeding (Stockpile)
- A. Seed: MNDOT 22-111 Seed & Type Hydraulic Mulch at a rate of 10 lb/1000 gal
- B. Fertilzer: Type 3 slow release 10-10-10 at a rate of 50 lb/1000 gal
- C.Mulch: Type Hydraulic Mulch at a rate of 350 lb/1000 gal D. Water: 875 gal/1000 gal
- E. Apply at 6000 gal of Slurry per acre (4) Stormwater Basins (Aquatic Bench up to HWL)
- A. Seed: **MNDOT 33-261** at a rate of 14.5 lb/acre B. Fertilzer: Type 3 slow release 10-10-10 at a rate of 200
- C.Mulch: MNDOT Type 3 at a rate of 2 tons/acre

INSPECTION AND MAINTENANCE OF BMPs Routine Inspection

- 1. Rock Entrance Inspect weekly. If rock becomes filled with sediment and tracked material to the extent the purpose ceases to function, remove the contaminated rock and replace with new rock.
- 2. Silt fence Inspect weekly, particularly for damaged sections, breaches, down-gradient areas, flow sensitive areas. Where capacity is filled to more than 50% of depth, sediment shall be removed to restore capture capacity.
- 3. Sediment traps and basins Inspect weekly. Where capacity is filled to more than 50% of depth, sediment shall be removed to restore capture capacity within 72 hours of discovery.
- 4. Inlet Protection Inspect weekly or more frequently as needed after multiple rainfalls less than 0.5". Verify intake capacity is not compromised. Where capacity is filled to more than 50% of depth, sediment shall be removed to restore capture capacity.
- 5. Inspect other site specific BMP's on a weekly basis

Rain Event Inspection - Mandatory, within 24 hours after a rain event 0.5" or greater. Complete all items associated with Routine Inspection. Furthermore, inspect site for breaches, failures, scours and gullying. Take corrective actions as necessary to restore functionality to the BMP's. If a given situation is discovered to be prone to repetitive failure, advise the Engineer and Contractor for SWPPP and BMP

- 1. All Erosion and Sediment Control facilities shall be maintained by the contractor during the construction operations. Any temporary facilities which are to be removed as called for on these plans and specifications shall be removed by the contractor at the time directed by the engineer. The contractor shall then restore the subsequently disturbed areas in accordance with these plans and specifications.
- 2. Wherever practical and feasible, the contractor shall protect and preserve existing natural trees, grass and other vegetative cover in effort to provide natural buffering and filtering of runoff.
- 3. Contractor shall be adaptable in adjusting construction schedules in anticipation of weather forecasts of precipitation, in order to minimize risk of erosion and sediment transport.
- 4. It is the responsibility of the contractor to keep public streets, travel ways, parking lots and trails utilized for ingress to and egress from the construction site free of dirt, sediment and debris, resulting from construction activity. Cost for this shall be considered incidental to the
- 5. Adequate control of dust shall be maintained by the contractor. Cost for dust control shall be considered incidental to the contract.

ADDITIONAL SWPPP NOTES (continued)

- 6. Perimeter controls shall not be removed until final stabilization of areas
- draining toward the control devices. 7. When temperatures do not exceed 40 degrees F, areas that require seed and mulch stabilization shall be dormant seeded. Application rate shall be two times the normal rate. No dormant seeding shall be done
- 8. Any areas that were seeded that do not achieve 70% coverage shall be reseeded at the contractor's expense, where coverage limitation is caused by lack of seed germination and growth.

MPCA STORMWATER PERMIT - RESPONSIBILITY

The Contractor will be required to become the Permittee for the project, until final stabilization and transfer of responsibility is completed. Transfer of responsibility shall be completed with the Permit Modification Form.

OWNER: BRANDL ANDERSON - 952-898-0230

PERMITTEE: TBD

OPERATOR(S): TBD

OTHER CONTACTS

ENGINEER: JOHN BENDER, P.E., - James R. Hill, Inc. - 952-890-6044

TRAINING REQUIREMENTS

INSTRUCTOR: JOHN CHAPMAN

JOHN BENDER, P.E. DESIGN OF CONSTRUCTION SWPPP (CERTIFICATION(2023-2026)) **UNIVERSITY OF MINNESOTA**

LGU CONTACT: CARTER SCHULZE - EDEN PRAIRIE - 952-949-8339

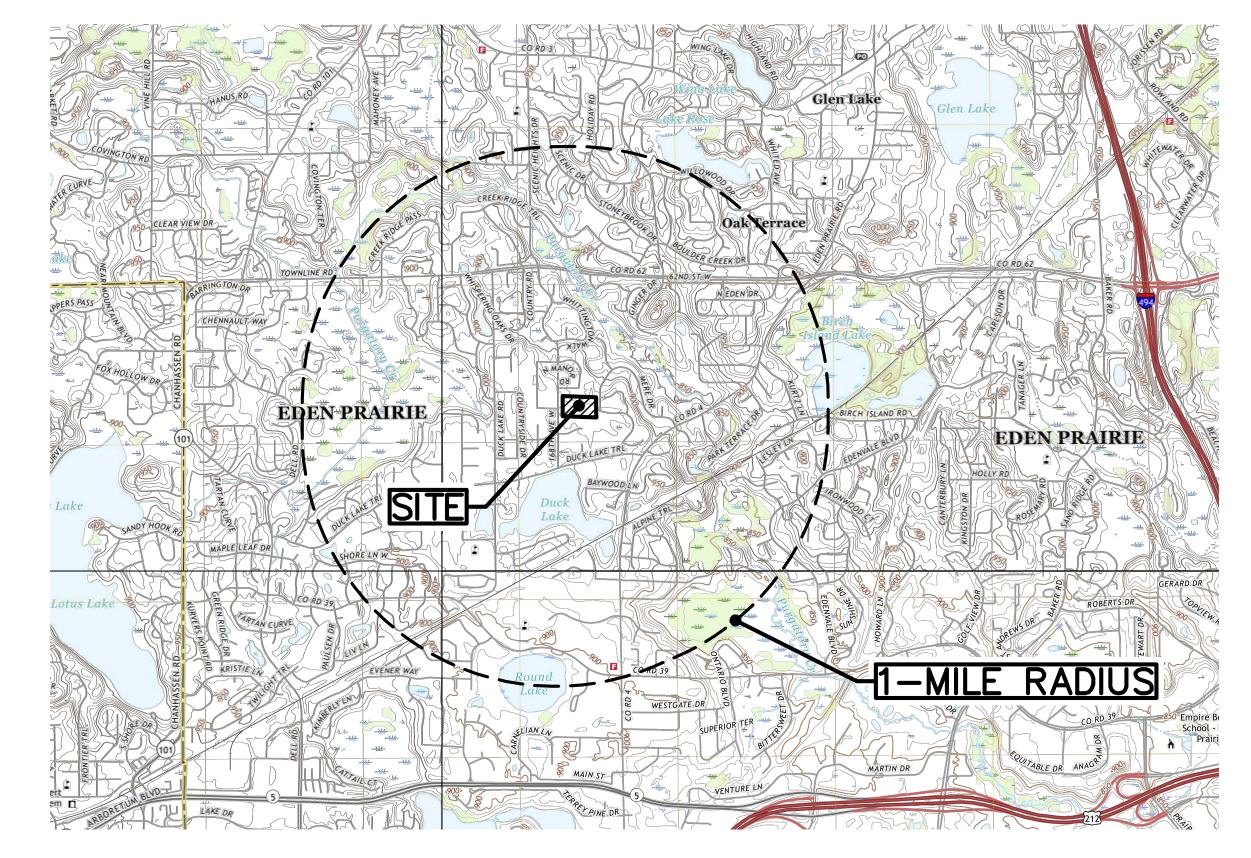
The Contractor shall follow the implementation sequence as described on these plans. Amendments shall be made as site conditions change. Amendments shall be proposed by contractor and reviewed by the engineer.

All BMP's selected and implemented shall be appropriate for the time of year, the current site conditions and for the estimated duration of use.

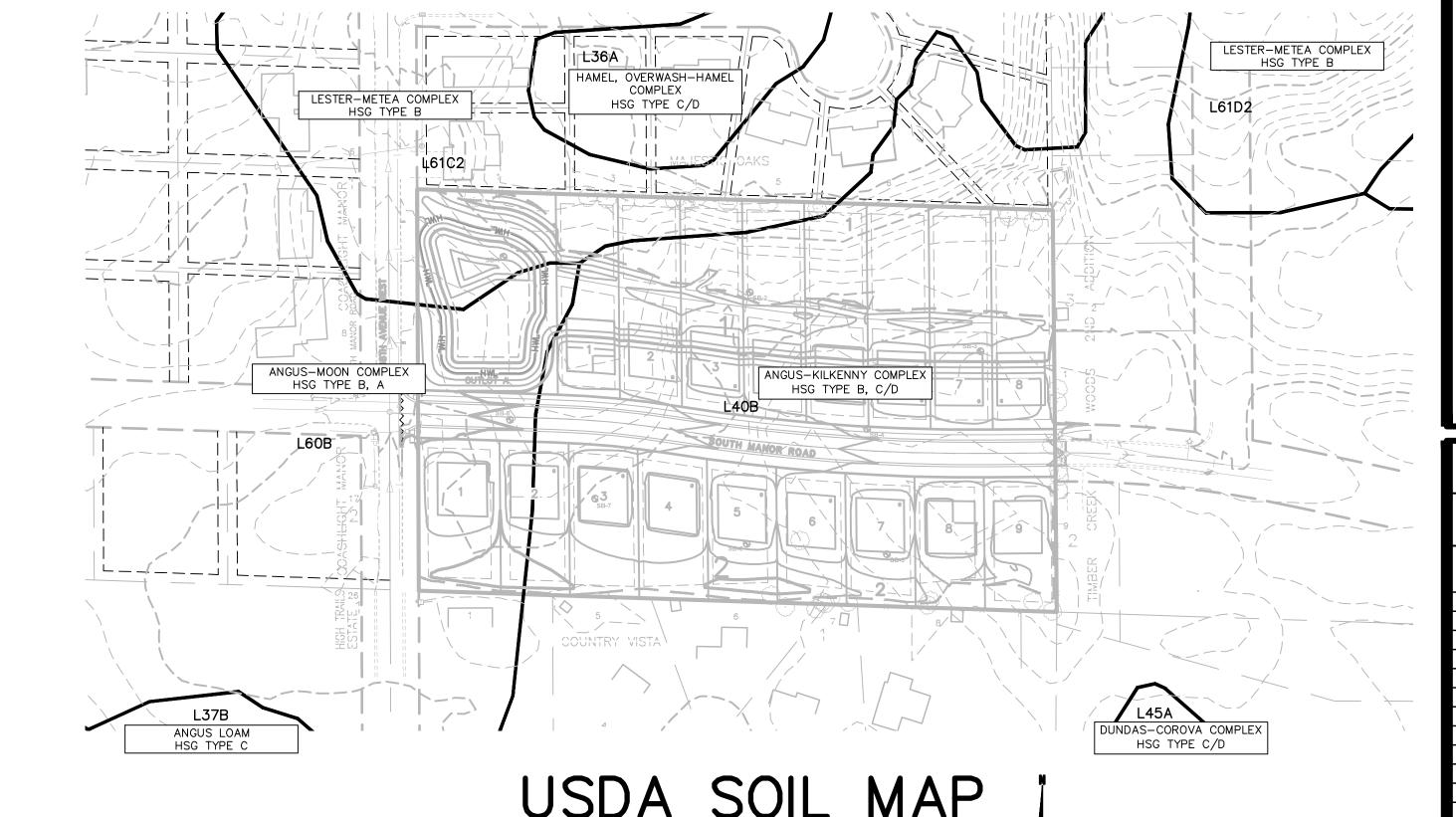
These plans shall be considered part of the project SWPPP. A copy of the SWPPP shall remain on site throughout active construction.

ESTIMATED EROSION AND SEDIMENT CONTROL QUANTITIES

CONSTRUCTION ROCK ENTRANCE	EA	1
STANDARD DUTY SILT FENCE	ᄕ	2,554
MNDOT SEED AND MULCH 33-261 (STORMWATER BASIN)	AC	X
MNDOT SEED AND MULCH 25-141 (GENERAL MIX) - 1.5X	AC	Х
MNDOT SEED AND MULCH 21-112 (TEMPORARY COVER CROP)	AC	Х
REAR YARD INLET PROTECTION	EA	4
WIMCO OR APPROVED EQUAL INLET PROTECTION	EA	8







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RO CONTROL MANOR AT NOIS(EN

> DRAWN BY EPF

01/24/24 **REVISIONS**

DATE

024-03-13 CITY COMMENTS 2024-03-18 WATERSHED COMMENTS 024-04-03 CITY COMMENTS 024-04-19 WATERSHED COMMENTS 024-05-06 LOT 8, BLOCK 2 GRAD 024-05-20 WATERSHED COMMENTS

> CAD FILE 24123ERD

PROJECT NO. 24123

under an individual NPDES/SDS permit with a Total Suspended Solids (TSS) effluent limit. [Minn. R. 7090] This permit covers ongoing projects covered under any previous construction stormwater permit that are not complete on the issuance date of this permit. Permittees must either remain in compliance with the previous permit and terminate coverage within 18 months of the issuance date of this permit or comply with this permit, including updating the Stormwater Pollution Prevention Plan (SWPPP), within the 18

month period. Permittees of previously permitted projects are not required to incorporate any additional

requirements regarding the permanent stormwater treatment system included in this reissued permit. Coverage for projects that extend beyond the expiration date of this permit remains effective for a grace period covering project completion and Notice of Termination (NOT) submittal. If Permittees cannot complete projects during the grace period, the MPCA will extend coverage under the next permit and permittees must comply with the requirements of the new permit including updating the SWPPP. Permittees are not required to follow changes to the permanent stormwater treatment section of the next permit. [Minn. R. 7090]

Prohibitions and Limitations of Coverage. [Minn. R. 7090 The owner must develop a complete and accurate SWPPP that complies with item 5.2 prior to submitting the application for coverage and starting construction activity. Failure to prepare a SWPPP prior to submitting the application may result in permit revocation. [Minn. R. 7090] This permit prohibits discharges of any material other than stormwater treated in compliance with this

permit and discharges from dewatering or basin draining activities in accordance with Section 10. Prohibited discharges include, but are not limited to, wastewater from washout of concrete, stucco, paint form release oils, curing compounds and other construction materials, fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance, soaps or solvents used in vehicle and equipment washing and maintenance, and other hazardous substances or wastes. [Minn. R. 7090] This permit does not authorize stormwater discharges related to the placement of fill into waters of the state requiring local, state or federal authorizations (such as U.S. Army Corps of Engineers Section 404 permits, Minnesota Department of Natural Resources (DNR) Public Waters Work permits or local governmental unit (LGU) Wetland Conservation Act replacement plans or determinations). [Minn. R. 7090]

This permit does not authorize stormwater discharges associated with industrial activity except for construction activity. Permittees must obtain coverage for discharges associated with industrial activity under a separate NPDES/SDS permit once day-to-day operational activities commence even if construction is ongoing. [Minn. R. 7090] This permit does not authorize discharges from non-point source agricultural and silvicultural activities

This permit does not authorize stormwater discharges to Prohibited, Restricted, Special or Impaired waters unless permittees follow the additional stormwater requirements in Section 23. [Minn. R. 7090] This permit does not replace or satisfy any environmental review requirements including those under the Minnesota Environmental Policy Act or the National Environmental Policy Act. The owner must verify $completion \ of \ any \ environmental \ review \ required \ by \ law, \ including \ any \ required \ Environmental$ Assessment Work Sheets or Environmental Impact Statements, Federal environmental review, or other required review prior to applying for coverage under this permit. If any part of your common plan of development or sale requires environmental review, coverage under this permit cannot be obtained until

such environmental review is complete. [Minn. R. 7090] This permit does not replace or satisfy any review requirements for discharges adversely impacting State or Federally designated endangered or threatened species or a designated critical habitat. The owner must comply with the National Historic Preservation Act and conduct all required review and coordination related to historic preservation, including significant anthropological sites and any burial sites, with the Minnesota Historic Preservation Officer. [Minn. R. 7090] This permit does not authorize discharges to wetlands unless the permittee complies with the

excluded from NPDES permit requirements under 40 CFR pt. 122.3(e). [Minn. R. 7090]

requirements in Section 22. [Minn. R. 7090] Application and Coverage Effective Date. [Minn. R. 7090]

e owner and operator must submit a complete and accurate on-line application with the appropriate fee to the MPCA for each project that disturbs one (1) or more acres of land or for a common plan of development or sale that will ultimately disturb one (1) or more acres. [Minn. R. 7090] For projects or common plans of development or sale that disturb less than 50 acres or do not discharge stormwater within 1 mile (aerial radius measurement) of a special or impaired water, permittees do not

need to submit the SWPPP with the application. Permit coverage for these projects is effective upon application and completing the payment process. [Minn. R. 7090] For certain projects or common plans of development or sale disturbing 50 acres or more, the complete SWPPP must be included with the application and submitted at least 30 days before the start of construction activity. This applies if there is a discharge point on the project within one mile (aerial radius measurement) of, and flows to, a special water listed in item 23.3 through 23.6 or an impaired water as described in item 23.7. Permit coverage for these projects is effective upon submitting the application and complete SWPPP, completing the payment process and receiving a determination from the MPCA that the review of the SWPPP is complete. The determination may take longer than 30 days if the SWPPP is incomplete. If the MPCA fails to contact the permittees within 30 days of application receipt, coverage is

effective 30 days after completing the payment process. [Minn. R. 7090] The application requires listing all persons meeting the definition of owner and operator as permittees The owner is responsible for compliance with all terms and conditions of this permit. The operator is responsible for compliance with Sections 3, 4, 6-22, 24 and applicable requirements for construction activity in Section 23. [Minn. R. 7090]

Permittees will receive coverage notification in a manner determined by the MPCA. [Minn. R. 7090] For construction projects where the owner or operator changes (e.g., an original developer sells portions of the property to various homebuilders or sells the entire site to a new owner), the current owner and the new owner or operator must submit a complete permit modification form provided by the MPCA. The current owner and the new owner or operator must submit the form prior to the new owner or operator commencing construction activity or no later than 30 days after taking ownership of the property. [Minn

For construction projects where the owner or operator changes, the current owner must provide a SWPPP owner or operator can implement the original SWPPP, modify the SWPPP, or develop a new SWPPP. Permittees must ensure their activities do not render another party's erosion prevention and sediment control BMPs ineffective, [Minn, R. 7090]

Termination of Coverage. [Minn. R. 7090] tees must submit a NOT within 30 days after all termination conditions listed in Section 13 are complete. [Minn. R. 7090]

Permittees must submit a NOT within 30 days after selling or otherwise legally transferring the entire site, including permit responsibility for roads (e.g., street sweeping) and stormwater infrastructure final clean out, or transferring portions of a site to another party. The permittees' coverage under this permit terminates at midnight on the submission date of the NOT. [Minn. R. 7090] Permittees may terminate permit coverage prior to completion of all construction activity if they meet all of the following conditions:

a. construction activity has ceased for at least 90 days; and b. at least 90 percent (by area) of all originally proposed construction activity has been completed and permanent cover has been established on those areas; and c. on areas where construction activity is not complete, permanent cover has been established; and 9.4d. the site complies with item 13.3 through 13.7.

After permit coverage is terminated under this item, any subsequent development on the remaining portions of the site will require permit coverage if the subsequent development itself or as part of the remaining common plan of development or sale will result in land disturbing activities of one (1) or more acres in size. [Minn. R. 7090] Permittees may terminate coverage upon MPCA approval after submitting information documenting the

owner cancelled the project. [Minn. R. 7090] Stormwater Pollution Prevention Plan (SWPPP) Content. [Minn. R. 7090] he owner must develop a SWPPP. The SWPPP must include items 5.3 through 5.26. [Minn. R. 7090]

The SWPPP must incorporate specific Best Management Practices (BMP) used to comply with the requirements of this permit, [Minn, R. 7090 The SWPPP must include a narrative describing the timing for installation of all erosion prevention and sediment control BMPs and a description of the permanent stormwater treatment systems. [Minn. R.

The SWPPP must include the location and type of all temporary and permanent erosion prevention and sediment control BMPs along with procedures used to establish additional temporary BMPs as necessary for the site conditions during construction. Standard details and/or specifications for BMPs must be included in the final plans and specifications for the project. [Minn. R. 7090] The SWPPP must include the calculations and other information used for the design of temporary

sediment basins and any of the permanent stormwater treatment systems required in Section 15. [Minn The SWPPP must include estimated quantities anticipated at the start of the project for the life of the project for all erosion prevention and sediment control BMPs (e.g., linear feet of silt fence or square feet of erosion control blanket). [Minn. R. 7090]

The SWPPP must include the number of acres of impervious surface for both pre- and post-construction. [Minn. R. 7090] he SWPPP must include a site map with existing and final grades, including drainage area boundaries,

soil types and locations of potential pollutant-generating activities as identified in Section 12. [Minn. R. he SWPPP must include a map of all surface waters, existing wetlands, and stormwater ponds or basins that can be identified on maps such as United States Geological Survey 7.5 minute quadrangle maps, the National Wetland Inventory map or equivalent maps and are within one mile (aerial radius measurement) from the project boundaries that will receive stormwater from the construction site, during or after

directions of flow and all discharge points where stormwater is leaving the site or entering a surface water. The site map must indicate the areas of steep slopes. The site map must also include impervious surfaces,

construction. The SWPPP must identify if the surface waters are special or impaired waters. [Minn. R. The SWPPP must include a site map showing construction activity areas that are adjacent to and drain to

Public Waters for which the DNR has promulgated "work in water restrictions" during specified fish spawning time frames. [Minn. R. 7090] Permittees must identify locations of 50' buffer zones as required in item 9.17 and 100' permanent buffer zones as required in item 23.11, on plan sheets in the SWPPP. [Minn. R. 7090]

c. buffer zones as described in item 9.17 and item 23.11. [Minn. R. 7090]

If permittees determine compliance with the following requirements is infeasible, they must document the determination in the SWPPP: a. temporary sediment basins as described in Section 14; and b. for linear projects, if the permanent stormwater treatment system cannot be constructed within the right-of-way, a reasonable attempt must be made to obtain additional right-of-way (item 15.9); and

SWPPP must describe the alternative BMPs used. [Minn. R. 7090] Where systems cannot meet the full volume reduction requirement on site, (e.g., the site has infiltration prohibitions, see item 16.14 through item 16.21) the permittee must document the reasons in the SWPPP

The SWPPP must include any stormwater mitigation measures proposed to be part of the final project in any environmental review document, endangered species review, archeological or other required local, state or federal review conducted for the project. For purposes of this permit, mitigation measures means

actions necessary to avoid, minimize, or mitigate for impacts related to erosion prevention, sediment

control, the permanent stormwater treatment system, pollution prevention management measures and

discharges associated with the project's construction activity. [Minn. R. 7090] The SWPPP must describe the methods used for permanent cover of all exposed soil areas. [Minn, R. 7090] Permittees must identify the locations of areas where construction will be phased to minimize the duration of exposed soil areas in the SWPPP. [Minn. R. 7090]

5.19 For projects with a discharge point on the project within one (1) mile (aerial radius measurement) of and which flows to an impaired water, permittees must identify the impaired water(s), and any United States Environmental Protection Agency (USEPA)-approved Total Maximum Daily Load (TMDL) for the pollutant(s) or stressor(s) described in item 23.7. Permittees' identification must include those TMDLs approved at any time prior to permit application submittal and are still in effect. [Minn. R. 7090] Permittees must document in the SWPPP, all trained individuals identified in item 21.2. Documentation

must include: a. names of personnel required to be trained; and b. dates of training and name of instructor(s) and entity providing training; and c. content of training course.

If permittees do not know the names of the individuals at the time of application, the permittees must ensure they document training before construction activity commences. [Minn. R. 7090] The SWPPP must identify a person knowledgeable and experienced in the application of erosion prevention and sediment control BMPs who will coordinate with all contractors, subcontractors, and operators on-site to oversee the implementation of the SWPPP. [Minn. R. 7090] The SWPPP must describe any specific chemicals and chemical treatment systems used for enhancing the

sedimentation process and how it achieves compliance with item 9.18. [Minn. R. 7090] The SWPPP must identify the person(s), organizations, or entities responsible for long-term operation and maintenance of permanent stormwater treatment systems. [Minn. R. 7090]

The SWPPP must describe methods to minimize soil compaction and preserve topsoil. Minimizing soil compaction is not required where the function of a specific area dictates compaction. [Minn. R. 7090] The SWPPP must include any site assessments for groundwater or soil contamination required in item 16.15. [Minn. R. 7090]

The SWPPP must account for the following factors in designing temporary erosion prevention and a, the expected amount, frequency, intensity, and duration of precipitation; and b. the nature of stormwater runoff and run-on at the site, including factors such as expected flow from

mpervious surfaces, slopes, and site drainage features; and c. the stormwater volume, velocity, and peak flowrates to minimize discharge of pollutants in stormwater and to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points;

d. the range of soil particle sizes expected to be present. [Minn. R. 7090] SWPPP Amendments. [Minn. R. 7090]

One of the individuals described in item 21.2.a or item 21.2.b or another qualified individual must complete all SWPPP changes. Changes involving the use of a less stringent BMP must include a justification describing how the replacement BMP is effective for the site characteristics. [Minn. R. 7090] Permittees must amend the SWPPP to include additional or modified BMPs as necessary to correct problems identified or address situations whenever there is a change in design, construction, operation

maintenance, weather or seasonal conditions having a significant effect on the discharge of pollutants to

surface waters or groundwater. [Minn. R. 7090] Permittees must amend the SWPPP to include additional or modified BMPs as necessary to correct problems identified or address situations whenever inspections or investigations by the site owner or operator, USEPA or MPCA officials indicate the SWPPP is not effective in eliminating or significantly minimizing the discharge of pollutants to surface waters or groundwater or the discharges are causing water quality standard exceedances (e.g., nuisance conditions as defined in Minn. R. 7050.0210, subp. 2) or the SWPPP is not consistent with the objectives of a USEPA approved TMDL. [Minn. R. 7050.0210]

BMP Selection and Installation. [Minn. R. 7090] Permittees must select, install, and maintain the BMPs identified in the SWPPP and in this permit in an appropriate and functional manner and in accordance with relevant manufacturer specifications and accepted engineering practices. [Minn. R. 7090]

Erosion Prevention Practices. [Minn. R. 7090] Before work begins, permittees must delineate the location of areas not to be disturbed. [Minn. R. 7090] Permittees must minimize the need for disturbance of portions of the project with steep slopes. When steep slopes must be disturbed, permittees must use techniques such as phasing and stabilization

practices designed for steep slopes (e.g., slope draining and terracing). [Minn. R. 7090] Permittees must stabilize all exposed soil areas, including stockpiles. Stabilization must be initiated immediately to limit soil erosion when construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization must be completed no later than 14 calendar days after the construction activity has ceased. Stabilization is not required on constructed base components of roads, parking lots and similar surfaces. Stabilization is not required on temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) but permittees must provide sediment controls at the base of the stockpile. [Minn. R. 7090]

For Public Waters that the Minnesota DNR has promulgated "work in water restrictions" during specified fish spawning time frames, permittees must complete stabilization of all exposed soil areas within 200 feet of the water's edge, and that drain to these waters, within 24 hours during the restriction period. [Minn. R.

Permittees must stabilize the normal wetted perimeter of the last 200 linear feet of temporary or permanent drainage ditches or swales that drain water from the site within 24 hours after connecting to a surface water or property edge. Permittees must complete stabilization of remaining portions of temporary or permanent ditches or swales within 14 calendar days after connecting to a surface water or property edge and construction in that portion of the ditch temporarily or permanently ceases. [Minn. R.

Temporary or permanent ditches or swales being used as a sediment containment system during onstruction (with properly designed rock-ditch checks, bio rolls, silt dikes, etc.) do not need to be stabilized. Permittees must stabilize these areas within 24 hours after their use as a sediment containment Permittees must not use mulch, hydromulch, tackifier, polyacrylamide or similar erosion prevention

practices within any portion of the normal wetted perimeter of a temporary or permanent drainage ditc or swale section with a continuous slope of greater than 2 percent. [Minn. R. 7090 Permittees must provide temporary or permanent energy dissipation at all pipe outlets within 24 hours after connection to a surface water or permanent stormwater treatment system. [Minn. R. 7090]

8.10 Permittees must not disturb more land (i.e., phasing) than can be effectively inspected and maintained in accordance with Section 11. [Minn. R. 7090] Sediment Control Practices. [Minn. R. 7090] Permittees must establish sediment control BMPs on all downgradient perimeters of the site and downgradient areas of the site that drain to any surface water, including curb and gutter systems.

Permittees must locate sediment control practices upgradient of any buffer zones. Permittees must install sediment control practices before any upgradient land-disturbing activities begin and must keep the sediment control practices in place until they establish permanent cover. [Minn. R. 7090] If downgradient sediment controls are overloaded, based on frequent failure or excessive maintenance uirements, permittees must install additional upgradient sediment control practices or redundant

BMPs to eliminate the overloading and amend the SWPPP to identify these additional practices as required in item 6.3. [Minn. R. 7090] Temporary or permanent drainage ditches and sediment basins designed as part of a sediment containment system (e.g., ditches with rock-check dams) require sediment control practices only as

appropriate for site conditions. [Minn. R. 7090] A floating silt curtain placed in the water is not a sediment control BMP to satisfy item 9.2 except when working on a shoreline or below the waterline. Immediately after the short term construction activity (e.g., installation of rip rap along the shoreline) in that area is complete, permittees must install an upland perimeter control practice if exposed soils still drain to a surface water. [Minn. R. 7090]

Permittees must re-install all sediment control practices adjusted or removed to accommodate short-term activities such as clearing or grubbing, or passage of vehicles, immediately after the short-term activity is completed. Permittees must re-install sediment control practices before the next precipitation event even if the short-term activity is not complete. [Minn. R. 7090]

Permittees must protect all storm drain inlets using appropriate BMPs during construction until they establish permanent cover on all areas with potential for discharging to the inlet. [Minn. R. 7090] Permittees may remove inlet protection for a particular inlet if a specific safety concern (e.g. street flooding/freezing) is identified by the permittees or the jurisdictional authority (e.g.,

 $city/county/township/Minnesota\ Department\ of\ Transportation\ engineer).\ Permittees\ must\ document\ the$ need for removal in the SWPPP. [Minn. R. 7090] Permittees must provide silt fence or other effective sediment controls at the base of stockpiles on the downgradient perimeter. [Minn. R. 7090]

conveyances such as curb and gutter systems unless there is a bypass in place for the stormwater. [Minn. Permittees must install a vehicle tracking BMP to minimize the track out of sediment from the construction site or onto paved roads within the site. [Minn. R. 7090]

9.10 Permittees must locate stockpiles outside of natural buffers or surface waters, including stormwater

Permittees must use street sweeping if vehicle tracking BMPs are not adequate to prevent sediment tracking onto the street. [Minn. R. 7090] Permittees must install temporary sediment basins as required in Section 14. [Minn. R. 7090]

In any areas of the site where final vegetative stabilization will occur, permittees must restrict vehicle and equipment use to minimize soil compaction. [Minn. R. 7090] Permittees must preserve topsoil on the site, unless infeasible. [Minn. R. 7090] Permittees must direct discharges from BMPs to vegetated areas unless infeasible. [Minn. R. 7090] Permittees must preserve a 50 foot natural buffer or, if a buffer is infeasible on the site, provide redundant (double) perimeter sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water. Permittees must install perimeter sediment

controls at least 5 feet apart unless limited by lack of available space. Natural buffers are not required adjacent to road ditches, judicial ditches, county ditches, stormwater conveyance channels, storm drain inlets, and sediment basins. If preserving the buffer is infeasible, permittees must document the reasons in the SWPPP. Sheet piling is a redundant perimeter control if installed in a manner that retains all stormwater.

[Minn. R. 7090] Permittees must use polymers, flocculants, or other sedimentation treatment chemicals in accordance with accepted engineering practices, dosing specifications and sediment removal design specifications provided by the manufacturer or supplier. The permittees must use conventional erosion and sediment controls prior to chemical addition and must direct treated stormwater to a sediment control system for

filtration or settlement of the floc prior to discharge. [Minn. R. 7090] Dewatering and Basin Draining. [Minn. R. 7090] ees must discharge turbid or sediment-laden waters related to dewatering or basin draining (e.g. pumped discharges, trench/ditch cuts for drainage) to a temporary or permanent sediment basin on the project site unless infeasible. Permittees may dewater to surface waters if they visually check to ensure adequate treatment has been obtained and nuisance conditions (see Minn. R. 7050.0210, subp. 2) will not result from the discharge. If permittees cannot discharge the water to a sedimentation basin prior to entering a surface water, permittees must treat it with appropriate BMPs such that the discharge does not

suitable filtration device (e.g., cartridge filters, absorbents pads) prior to discharge. [Minn. R. 7090]

adversely affect the surface water or downstream properties. [Minn. R. 7050.0210]

10.3 If permittees must discharge water containing oil or grease, they must use an oil-water separator or

cause erosion or scour in the immediate vicinity of discharge points or inundation of wetlands in the immediate vicinity of discharge points that causes significant adverse impact to the wetland. [Minn. R. $\underline{10.5} \hspace{0.5cm} \textbf{If permittees use filters with backwash water, they must haul the backwash water away for disposal,} \\$

return the backwash water to the beginning of the treatment process, or incorporate the backwash water into the site in a manner that does not cause erosion. [Minn. R. 7090] Inspections and Maintenance. [Minn. R. 7090] Permittees must ensure a trained person, as identified in item 21.2.b, will inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event

greater than 1/2 inch in 24 hours. [Minn. R. 7090] Permittees must inspect and maintain all permanent stormwater treatment BMPs. [Minn, R, 7090] Permittees must inspect all erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness. Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery unless another time frame is specified in item 11.5 or 11.6. Permittees may take additional time

if field conditions prevent access to the area. [Minn. R. 7090] 11.5 During each inspection, permittees must inspect surface waters, including drainage ditches and priveyance systems but not curb and gutter systems, for evidence of erosion and sediment depositio Permittees must remove all deltas and sediment deposited in surface waters, including drainage ways catch basins, and other drainage systems and restabilize the areas where sediment removal results in exposed soil. Permittees must complete removal and stabilization within seven (7) calendar days of discovery unless precluded by legal, regulatory, or physical access constraints. Permittees must use all reasonable efforts to obtain access. If precluded, removal and stabilization must take place within seven (7) days of obtaining access. Permittees are responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work in surface waters. [Minn, R.

Permittees must inspect construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles. Permittees must remove sediment from all paved surfaces within one (1) calendar day of discovery or, if applicable. within a shorter time to avoid a safety hazard to users of public streets. [Minn. R. 7090]

Permittees must repair, replace or supplement all perimeter control devices when they become nonfunctional or the sediment reaches 1/2 of the height of the device. [Minn. R. 7090] 11.8 Permittees must drain temporary and permanent sedimentation basins and remove the sediment when the depth of sediment collected in the basin reaches 1/2 the storage volume. [Minn. R. 7090] 11.9 Permittees must ensure that at least one individual present on the site (or available to the project site in three (3) calendar days) is trained in the job duties described in item 21.2.b. [Minn. R. 7090]

11.10 Permittees may adjust the inspection schedule described in item 11.2 as follows

a. inspections of areas with permanent cover can be reduced to once per month, even if construction activity continues on other portions of the site; or b. where sites have permanent cover on all exposed soil and no construction activity is occurring anywhere on the site, inspections can be reduced to once per month and, after 12 months, may be suspended completely until construction activity resumes. The MPCA may require inspections to resume if conditions warrant; or c. where construction activity has been suspended due to frozen ground conditions, inspections may be suspended. Inspections must resume within 24 hours of runoff occurring, or upon resuming construction whichever comes first [Minn R 7090]

11.11 Permittees must record all inspections and maintenance activities within 24 hours of being conducted and these records must be retained with the SWPPP. These records must include a. date and time of inspections; and

b. name of persons conducting inspections; and c. accurate findings of inspections, including the specific location where corrective actions are needed; and d. corrective actions taken (including dates, times, and party completing maintenance activities); and e. date of all rainfall events greater than 1/2 inches in 24 hours, and the amount of rainfall for each event. Permittees must obtain rainfall amounts by either a properly maintained rain gauge installed onsite, a weather station that is within one (1) mile of your location, or a weather reporting system that provides site specific rainfall data from radar summaries; and f. if permittees observe a discharge during the inspection, they must record and should photograph and describe the location of the discharge (i.e., color, odor, settled or suspended solids, oil sheen, and other obvious indicators of pollutants); and g, any amendments to the SWPPP proposed as a result of the inspection must be documented as required

12.1 Pollution Prevention Management Measures. [Minn. R. 7090] Permittees must place building products and landscape materials under cover (e.g., plastic sheeting or temporary roofs) or protect them by similarly effective means designed to minimize contact with stormwater. Permittees are not required to cover or protect products which are either not a source of ontamination to stormwater or are designed to be exposed to stormwater. [Minn. R. 7090] 12.3 Permittees must place pesticides, fertilizers and treatment chemicals under cover (e.g., plastic sheeting or temporary roofs) or protect them by similarly effective means designed to minimize contact with

in Section 6 within seven (7) calendar days. [Minn. R. 7090]

Permittees must store hazardous materials and toxic waste, (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) in sealed containers to prevent spills, leaks or other discharge. Storage and disposal of hazardous waste materials must be in compliance with Minn. R. ch. 7045 including secondary containment as applicable. [Minn. R. 7090] 12.5 Permittees must properly store, collect and dispose solid waste in compliance with Minn. R. ch. 7035.

[Minn. R. 7035] Permittees must position portable toilets so they are secure and will not tip or be knocked over. Permittees must properly dispose sanitary waste in accordance with Minn. R. ch. 7041. [Minn. R. 7041 Permittees must take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded including the use of drip pans of absorbents unless infeasible. Permittees must ensure adequate supplies are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials. Permittees must report and clean up spills immediately as required by Minn. Stat. 115.061,

using dry clean up measures where possible. [Minn. Stat. 115.061] Permittees must limit vehicle exterior washing and equipment to a defined area of the site. Permittees must contain runoff from the washing area in a sediment basin or other similarly effective controls and must dispose waste from the washing activity properly. Permittees must properly use and store soaps, detergents, or solvents. [Minn. R. 7090]

12.9 Permittees must provide effective containment for all liquid and solid wastes generated by washout operations (e.g., concrete, stucco, paint, form release oils, curing compounds and other construction materials) related to the construction activity. Permittees must prevent liquid and solid washout wastes from contacting the ground and must design the containment so it does not result in runoff from the MPCA rules. Permittees must install a sign indicating the location of the washout facility. [Minn. R. 7035,

Permit Termination Conditions. [Minn. R. 7090] Permittees must complete all construction activity and must install permanent cover over all areas prior to submitting the NOT. Vegetative cover must consist of a uniform perennial vegetation with a density of 70 percent of its expected final growth. Vegetation is not required where the function of a specific area dictates no vegetation, such as impervious surfaces or the base of a sand filter. [Minn. R. 7090] Permittees must clean the permanent stormwater treatment system of any accumulated sediment and

nust ensure the system meets all applicable requirements in Section 15 through 19 and is operating as 13.4 Permittees must remove all sediment from conveyance systems prior to submitting the NOT. [Minn. R. 13.5 Permittees must remove all temporary synthetic erosion prevention and sediment control BMPs prior to

submitting the NOT. Permittees may leave BMPs designed to decompose on-site in place. [Minn. R. 7090] 13.6 For residential construction only, permit coverage terminates on individual lots if the structures are finished and temporary erosion prevention and downgradient perimeter control is complete, the residence sells to the homeowner, and the permittee distributes the MPCA's "Homeowner Fact Sheet" to

the homeowner, [Minn, R. 7090] 13.7 For construction projects on agricultural land (e.g., pipelines across cropland), permittees must return the disturbed land to its preconstruction agricultural use prior to submitting the NOT. [Minn. R. 7090] Temporary Sediment Basins. [Minn. R. 7090] Where ten (10) or more acres of disturbed soil drain to a common location, permittees must provide a

temporary sediment basin to provide treatment of the runoff before it leaves the construction site of enters surface waters. Permittees may convert a temporary sediment basin to a permanent basin after construction is complete. The temporary basin is no longer required when permanent cover has reduced the acreage of disturbed soil to less than ten (10) acres draining to a common location. [Minn. R. 7090] 14.3 The temporary basin must provide live storage for a calculated volume of runoff from a two (2)-year, 24hour storm from each acre drained to the basin or 1,800 cubic feet of live storage per acre drained,

whichever is greater. [Minn. R. 7090] $\underline{\textbf{14.4}} \quad \text{Where permittees have not calculated the two (2)-year, 24-hour storm runoff amount, the temporary}$ basin must provide 3,600 cubic feet of live storage per acre of the basins' drainage area. [Minn. R. 7090]

<u>14.5</u> Permittees must design basin outlets to prevent short-circuiting and the discharge of floating debris. [Minn. R. 7090] $\underline{\textbf{14.6}} \quad \text{Permittees must design the outlet structure to withdraw water from the surface to minimize the discharge}$ of pollutants. Permittees may temporarily suspend the use of a surface withdrawal mechanism during frozen conditions. The basin must include a stabilized emergency overflow to prevent failure of pond

integrity. [Minn. R. 7090] 14.7 Permittees must provide energy dissipation for the basin outlet within 24 hours after connection to a surface water. [Minn. R. 7090]

Permittees must locate temporary basins outside of surface waters and any buffer zone required in item 23.11. [Minn, R. 7090] Permittees must construct the temporary basins prior to disturbing 10 or more acres of soil draining to a

common location. [Minn. R. 7090] <u>14.10</u> Where a temporary sediment basin meeting the requirements of item 14.3 through 14.9 is infeasible, permittees must install effective sediment controls such as smaller sediment basins and/or sediment traps, silt fences, vegetative buffer strips or any appropriate combination of measures as dictated by individual site conditions. In determining whether installing a sediment basin is infeasible, permittees must consider public safety and may consider factors such as site soils, slope, and available area on-site. Permittees must document this determination of infeasibility in the SWPPP. [Minn. R. 7090]

Permanent Stormwater Treatment System. [Minn. R. 7090] Permittees must design the project so all stormwater discharged from the project during and after construction activities does not cause a violation of state water quality standards, including nuisance conditions, erosion in receiving channels or on downslope properties, or a significant adverse impact to wetlands caused by inundation or decrease of flow. [Minn. R. 7090] Permittees must design and construct a permanent stormwater treatment system to treat the water

creating a net increase of one (1) or more acres of cumulative impervious surface. [Minn. R. 7090] Permittees must calculate the water quality volume as one (1) inch times the net increase of impervious surfaces created by the project. [Minn. R. 7090] <u>15.5</u> Permittees must first consider volume reduction practices on-site (e.g., infiltration or other) when designing the permanent stormwater treatment system. If this permit prohibits infiltration as described in item 16.14 through item 16.21, permittees may consider a wet sedimentation basin, filtration basin or regional pond. This permit does not consider wet sedimentation basins and filtration systems to be volume

quality volume if the project's ultimate development replaces vegetation and/or other pervious surfaces

15.6 For projects where the full volume reduction requirement cannot be met on-site, (e.g., the site has infiltration prohibitions), permittees must document the reasons in the SWPPP. [Minn. R. 7090] 15.7 Permittees must discharge the water quality volume to a permanent stormwater treatment system prior to discharge to a surface water. For purposes of this item, surface waters do not include man-made drainage systems that convey stormwater to a permanent stormwater treatment system. [Minn. R. 7090]

reduction practices. [Minn. R. 7090]

practices required by Sections 15 through 19, permittees must install other treatment such as grassed swales, smaller ponds, or grit chambers, prior to the discharge of stormwater to surface waters. [Minn. R.

15.9 For linear projects where permittees cannot treat the entire water quality volume within the existing rightof-way, permittees must make a reasonable attempt to obtain additional right-of-way, easement or other permission for stormwater treatment during the project planning process. Documentation of these attempts must be in the SWPPP. Permittees must still consider volume reduction practices first as described in item 15.5. If permittees cannot obtain additional right-of-way, easement or other permission, they must maximize the treatment of the water quality volume prior to discharge to surface waters. [Minn. R. 7090]

Infiltration Systems. [Minn. R. 7090] Infiltration options include, but are not limited to: infiltration basins, infiltration trenches, rainwater gardens, bioretention areas without underdrains, swales with impermeable check dams, and natural depressions. If permittees utilize an infiltration system to meet the requirements of this permit, they must incorporate the design parameters in item 16.3 through item 16.21. Permittees must follow the infiltration permit. [Minn. R. 7090]

prohibition in item 16.14 anytime an infiltration system is designed, including those not required by this 16.3 Permittees must design infiltration systems such that pre-existing hydrologic conditions of wetlands in the vicinity are not impacted (e.g., inundation or breaching a perched water table supporting a wetland). [Minn. R. 7090] Permittees must not excavate infiltration systems to final grade, or within three (3) feet of final grade, until

erosion prevention and sediment controls (e.g., diversion berms) to keep sediment and runoff completely away from the infiltration area. [Minn. R. 7090] 16.5 When excavating an infiltration system to within three (3) feet of final grade, permittees must stake off and mark the area so heavy construction vehicles or equipment do not compact the soil in the infiltration area. [Minn, R. 7090]

<u>16.6</u> Permittees must use a pretreatment device such as a vegetated filter strip, forebay, or water quality inlet

the contributing drainage area has been constructed and fully stabilized unless they provide rigorous

(e.g., grit chamber) to remove solids, floating materials, and oil and grease from the runoff, to the maximum extent practicable, before the system routes stormwater to the infiltration system. [Minn. R. 16.7 Permittees must design infiltration systems to provide a water quality volume (calculated as an instantaneous volume) of one (1) inch of runoff, or one (1) inch minus the volume of stormwater treated by another system on the site, from the net increase of impervious surfaces created by the project. [Minn.

16.8 Permittees must design the infiltration system to discharge all stormwater (including stormwater in excess of the water quality volume) routed to the system through the uppermost soil surface or engineered media surface within 48 hours. Permittees must route additional flows that cannot infiltrate within 48 hours to bypass the system through a stabilized discharge point. [Minn. R. 7090]

16.9 Permittees must provide a means to visually verify the infiltration system is discharging through the soil surface or filter media surface within 48 hours or less. [Minn. R. 7090] 16.10 Permittees must provide at least one soil boring, test pit or infiltrometer test in the location of the infiltration practice for determining infiltration rates. [Minn. R. 7090]

16.11 For design purposes, permittees must divide field measured infiltration rates by 2 as a safety factor or

to determine design infiltration rates. When soil borings indicate type A soils, permittees should perform field measurements to verify the rate is not above 8.3 inches per hour. This permit prohibits infiltration if the field measured infiltration rate is above 8.3 inches per hour. [Minn. R. 7090] 16.12 Permittees must employ appropriate on-site testing ensure a minimum of three (3) feet of separation from the seasonally saturated soils (or from bedrock) and the bottom of the proposed infiltration system. [Minn. R. 7090]

permittees can use soil-boring results with the infiltration rate chart in the Minnesota Stormwater Manual

16.13 Permittees must design a maintenance access, typically eight (8) feet wide, for the infiltration system. [Minn. R. 7090] 16.14 This permit prohibits permittees from constructing infiltration systems that receive runoff from vehicle fueling and maintenance areas including construction of infiltration systems not required by this permit.

16.15 This permit prohibits permittees from constructing infiltration systems where infiltrating stormwater may mobilize high levels of contaminants in soil or groundwater. Permittees must either complete the MPCA's contamination screening checklist or conduct their own assessment to determine the suitability for infiltration. Permittees must retain the checklist or assessment with the SWPPP. For more information and to access the MPCA's "contamination screening checklist" see the Minnesota Stormwater Manual. [Minn. R. 7090]

16.16 This permit prohibits permittees from constructing infiltration systems in areas where soil infiltration rates are field measured at more than 8.3 inches per hour unless they amend soils to slow the infiltration rate below 8.3 inches per hour. [Minn. R. 7090] 16.17 This permit prohibits permittees from constructing infiltration systems in areas with less than three (3)

feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock. [Minn. R. 7090] 16.18 This permit prohibits permittees from constructing infiltration systems in areas of predominately Hydrologic Soil Group type D soils (clay). [Minn. R. 7090]

16.19 This permit prohibits permittees from constructing infiltration systems within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13, if the system will be located: a. in an Emergency Response Area (ERA) within a DWSMA classified as having high or very high vulnerability as defined by the Minnesota Department of Health; or b. in an ERA within a DWSMA classified as moderate vulnerability unless a regulated MS4 Permittee performed or approved a higher level of engineering review sufficient to provide a functioning treatment system and to prevent adverse impacts to groundwater; or c. outside of an ERA within a DWSMA classified as having high or very high vulnerability, unless a regulated MS4 Permittee performed or approved a higher level of engineering review sufficient to provide a functioning treatment system and to prevent adverse impacts to groundwater See "higher level of engineering review" in the Minnesota Stormwater Manual for more information. [Minn. R. 7090]

16.20 This permit prohibits permittees from constructing infiltration systems in areas within 1,000 feet upgradient or 100 feet downgradient of active karst features. [Minn. R. 7090] 16.21 This permit prohibits permittees from constructing infiltration systems in areas that receive runoff from the following industrial facilities not authorized to infiltrate stormwater under the NPDES stormwater permit for industrial activities; automobile salvage vards; scrap recycling and waste recycling facilities hazardous waste treatment, storage, or disposal facilities; or air transportation facilities that conduct

deicing activities. [Minn. R. 7090]

Filtration Systems. [Minn. R. 7090] Filtration options include, but are not limited to: sand filters with underdrains, biofiltration areas, swales using underdrains with impermeable check dams and underground sand filters. If permittees utilize a comply with items 17.3 through 17.11. [Minn. R. 7090] <u>17.3</u> Permittees must not install filter media until they construct and fully stabilize the contributing drainage

area unless they provide rigorous erosion prevention and sediment controls (e.g., diversion berms) to keep sediment and runoff completely away from the filtration area. [Minn. R. 7090] Permittees must design filtration systems to remove at least 80 percent of TSS. [Minn. R. 7090] Permittees must use a pretreatment device such as a vegetated filter strip, small sedimentation basin, water quality inlet, forebay or hydrodynamic separator to remove settleable solids, floating materials, and oils and grease from the runoff, to the maximum extent practicable, before runoff enters the filtration system. [Minn. R. 7090]

17.6 Permittees must design filtration systems to treat a water quality volume (calculated as an instantaneous volume) of one (1) inch of runoff, or one (1) inch minus the volume of stormwater treated by another system on the site, from the net increase of impervious surfaces created by the project. [Minn. R. 7090] Permittees must design the filtration system to discharge all stormwater (including stormwater in excess of the water quality volume) routed to the system through the uppermost soil surface or engineered

media surface within 48 hours. Additional flows that the system cannot filter within 48 hours must bypass the system or discharge through an emergency overflow. [Minn. R. 7090] 17.8 Permittees must design the filtration system to provide a means to visually verify the system is discharging through the soil surface or filter media within 48 hours. [Minn. R. 7090]

<u>17.9</u> Permittees must employ appropriate on-site testing to ensure a minimum of three (3) feet of separation between the seasonally saturated soils (or from bedrock) and the bottom of the proposed filtration system, [Minn, R. 7090] 17.10 Permittees must ensure that filtration systems with less than three (3) feet of separation between seasonally saturated soils or from bedrock are constructed with an impermeable liner. [Minn. R. 7090]

17.11 The permittees must design a maintenance access, typically eight (8) feet wide, for the filtration system.

[Minn. R. 7090] Wet Sedimentation Basin. [Minn. R. 7090] Permittees using a wet sedimentation basin to meet the permanent stormwater treatment requirements of this permit must incorporate the design parameters in item 18.3 through 18.10. [Minn. R. 7090] 18.3 Permittees must design the basin to have a permanent volume of 1,800 cubic feet of storage below the outlet pipe for each acre that drains to the basin. The basin's permanent volume must reach a minimum depth of at least three (3) feet and must have no depth greater than 10 feet. Permittees must configure

the basin to minimize scour or resuspension of solids. [Minn. R. 7090] 18.4 Permittees must design the basin to provide live storage for a water quality volume (calculated as an instantaneous volume) of one (1) inch of runoff, or one (1) inch minus the volume of stormwater treated

by another system on the site, from the net increase in impervious surfaces created by the project. [Minn.R. 7090] 24.9 18.5 Permittees must design basin outlets so the water quality volume discharges at no more than 5.66 cubic feet per second (cfs) per acre of surface area of the basin. [Minn. R. 7090] 18.6 Permittees must design basin outlets to prevent short-circuiting and the discharge of floating debris. Basin outlets must have energy dissipation. [Minn. R. 7090]

Permittees must design the basin to include a stabilized emergency overflow to accommodate storm events in excess of the basin's hydraulic design. [Minn. R. 7090] Permittees must design a maintenance access, typically eight (8) feet wide, for the basin. [Minn. R. 7090] Permittees must locate basins outside of surface waters and any buffer zone required in item 23.11. Permittees must design basins to avoid draining water from wetlands unless the impact to the wetland complies with the requirements of Section 22. [Minn. R. 7090]

8.10 Permittees must design basins using an impermeable liner if located within active karst terrain. [Minn. R.7090] 1 Regional Wet Sedimentation Basins. [Minn. R. 7090] When the entire water quality volume cannot be retained onsite, permittees can use or create regiona wet sedimentation basins provided they are constructed basins, not a natural wetland or water body (wetlands used as regional basins must be mitigated for, see Section 22). The owner must ensure the regional basin conforms to all requirements for a wet sedimentation basin as described in items 18.3 through 18.10 and must be large enough to account for the entire area that drains to the regional basin Permittees must verify that the regional basin will discharge at no more than 5.66 cfs per acre of surface area of the basin and must provide a live storage volume of one inch times all the impervious area draining to the basin. Permittees cannot significantly degrade waterways between the project and the regional basin. The owner must obtain written authorization from the applicable LGU or private entity that owns

SWPPP Availability. [Minn. R. 7090] Permittees must keep the SWPPP, including all changes to it, and inspections and maintenance records at the site during normal working hours by permittees who have operational control of that portion of the Training Requirements. [Minn. R. 7090]

and maintains the regional basin. [Minn. R. 7090]

training is commensurate with the individual's job duties and responsibilities with regard to activities covered under this permit: a. Individuals preparing the SWPPP for the project. b. Individuals overseeing implementation of, revising and/or amending the SWPPP and individuals performing inspections for the project. One of these individuals must be available for an onsite

inspection within 72 hours upon request by the MPCA.

Permittees must ensure all of the following individuals receive training and the content and extent of the

c. Individuals performing or supervising the installation, maintenance and repair of BMPs. [Minn. R. 7090]

agencies, professional organizations, or other entities with expertise in erosion prevention, sediment control, permanent stormwater treatment and the Minnesota NPDES/SDS Construction Stormwater permit. Permittees must ensure these individuals attend a refresher-training course every three (3) years. [Minn. R. 7090]

Requirements for Discharges to Wetlands. [Minn. R. 7050.0186] If the project has any discharges with the potential for significant adverse impacts to a wetland, (e.g.,

conversion of a natural wetland to a stormwater pond) permittees must demonstrate that the wetland mitigative sequence has been followed in accordance with items 22.3 or 22.4. [Minn. R. 7050.0186] 22.3 If the potential adverse impacts to a wetland on a specific project site are addressed by permits or other approvals from an official statewide program (U.S. Army Corps of Engineers 404 program, Minnesota Department of Natural Resources, or the State of Minnesota Wetland Conservation Act) that are issued specifically for the project and project site, permittees may use the permit or other determination issued by these agencies to show the potential adverse impacts are addressed. For purposes of this permit, deminimus actions are determinations by the permitting agency that address the project impacts, whereas a non-jurisdictional determination does not address project impacts. [Minn. R. 7090]

22.4 If there are impacts from the project not addressed in one of the permits or other determinations discussed in item 22.3 (e.g., permanent inundation or flooding of the wetland, significant degradation of water quality, excavation, filling, draining), permittees must minimize all adverse impacts to wetlands by utilizing appropriate measures. Permittees must use measures based on the nature of the wetland, its vegetative community types and the established hydrology. These measures include in order of preference:

a. avoid all significant adverse impacts to wetlands from the project and post-project discharge; b. minimize any unavoidable impacts from the project and post-project discharge; c. provide compensatory mitigation when the permittees determine(s) that there is no reasonable and practicable alternative to having a significant adverse impact on a wetland. For compensatory mitigation wetland restoration or creation must be of the same type, size and whenever reasonable and practicable in the same watershed as the impacted wetland. [Minn. R. 7050.0186]

Additional Requirements for Discharges to Special (Prohibited, Restricted, Other) and Impaired Waters. [Minn. R. 7090] The BMPs identified for each special or impaired water are required for those areas of the project draining to a discharge point on the project that is within one mile (aerial radius measurement) of special or impaired water and flows to that special or impaired water. [Minn. R. 7090]

23.3 Discharges to the following special waters identified as Prohibited in Minn. R. 7050.0035 Subp. 3 must incorporate the BMPs outlined in items 23.9, 23.10, 23.11, 23.13 and 23.14: a. Boundary Waters Canoe Area Wilderness; Voyageurs National Park; Kettle River from the site of the former dam at Sandstone to its confluence with the Saint Croix River; Rum River from Ogechie Lake spillway to the northernmost confluence with Lake Onamia b. Those portions of Lake Superior North of latitude 47 degrees, 57 minutes, 13 seconds, East of Hat Point, South of the Minnesota-Ontario boundary, and West of the Minnesota-Michigan boundary; c. Scientific and Natural Areas identified as in Minn. R. 7050.0335 Subp. 3: Boot Lake, Anoka County; Kettle River in sections 15, 22, 23, T 41 N, R 20, Pine County; Pennington Bog, Beltrami County; Purvis Lake-Ober Foundation, Saint Louis County; waters within the borders of Itasca Wilderness Sanctuary, Clearwater County: Wolsfeld Woods, Hennepin County: Green Water Lake, Becker County: Blackdog Preserve, Dakota County; Prairie Bush Clover, Jackson County; Black Lake Bog, Pine County; Pembina Trail Preserve, Polk County; and Falls Creek, Washington County. [Minn. R. 7050.0335, Subp. 3]

23.4 Discharges to the following special waters identified as Restricted must incorporate the BMPs outlined in items 23.9. 23.10 and 23.11: a. Lake Superior, except those portions identified as prohibited in item 23.3.b; b. Mississippi River in those portions from Lake Itasca to the southerly boundary of Morrison County that are included in the Mississippi Headwaters Board comprehensive plan dated February 12, 1981; c. Scenic or Recreational River Segments: Saint Croix River, entire length; Cannon River from northern city limits of Faribault to its confluence with the Mississippi River; North Fork of the Crow River from Lake Koronis outlet to the Meeker-Wright county line; Kettle River from north Pine County line to the site of the former dam at Sandstone; Minnesota River from Lac que Parle dam to Redwood County State Aid Highway 11; Mississippi River from County State Aid Highway 7 bridge in Saint Cloud to northwestern city limits of Anoka; and Rum River from State Highway 27 bridge in Onamia to Madison and Rice streets in Anoka; d. Lake Trout Lakes identified in Minn. R. 7050.0335 including lake trout lakes inside the boundaries of the Boundary Waters Canoe Area Wilderness and Voyageurs National Park;

e. Calcareous Fens listed in Minn. R. 7050.0335, Subp. 1. [Minn. R. 7050.0335, Subp. 1] 23.5 Discharges to the Trout Lakes (other special water) identified in Minn. R. 6264.0050, subp. 2 must incorporate the BMPs outlined in items 23.9, 23.10 and 23.11. [Minn. R. 6264.0050, Subp. 2] 23.6 Discharges to the Trout Streams (other special water) listed in Minn. R. 6264.0050, subp. 4 must

incorporate the BMPs outlined in items 23.9, 23.10, 23.11 and 23.12, [Minn, R, 6264,0050, Subp. 4] Discharges to impaired waters or a water with an USEPA approved TMDL for any of the impairments listed in this item must incorporate the BMPs outlined in items 23.9 and 23.10. Impaired waters are waters identified as impaired under section 303 (d) of the federal Clean Water Act for phosphorus (nutrient eutrophication biological indicators), turbidity, TSS, dissolved oxygen or aquatic biota (fish bioassessment, aquatic plant bioassessment and aquatic macroinvertebrate bioassessment). Terms used for the pollutants or stressors in this item are subject to change. The MPCA will list terminology changes on its construction stormwater website. [Minn. R. 7090]

23.8 Where the additional BMPs in this Section conflict with requirements elsewhere in this permit, items 23.9 through 23.14 take precedence. [Minn. R. 7090]

Permittees must immediately initiate stabilization of exposed soil areas, as described in item 8.4, and complete the stabilization within seven (7) calendar days after the construction activity in that portion of the site temporarily or permanently ceases. [Minn. R. 7090] 23.10 Permittees must provide a temporary sediment basin as described in Section 14 for common drainage locations that serve an area with five (5) or more acres disturbed at one time. [Minn. R. 7090]

23.11 Permittees must include an undisturbed buffer zone of not less than 100 linear feet from a special water (not including tributaries) and must maintain this buffer zone at all times, both during construction and as a permanent feature post construction, except where a water crossing or other encroachment is necessary to complete the project. Permittees must fully document the circumstance and reasons the buffer encroachment is necessary in the SWPPP and include restoration activities. This permit allows replacement of existing impervious surface within the buffer. Permittees must minimize all potential water quality. scenic and other environmental impacts of these exceptions by the use of additional or redundant (double) BMPs and must document this in the SWPPP for the project. [Minn. R. 7090]

23.12 Permittees must design the permanent stormwater treatment system so the discharge from the proje minimizes any increase in the temperature of trout streams resulting from the one (1) and two (2) year 24 hour precipitation events. This includes all tributaries of designated trout streams located within the same Public Land Survey System (PLSS) Section. Permittees must incorporate one or more of the following measures, in order of preference: a. Provide stormwater infiltration or other volume reduction practices as described in item 15.4 and 15.5,

> b. Provide stormwater filtration as described in Section 17. Filtration systems must discharge all stormwater routed to the system within 24 hours. swales, and through the use of other non-structural controls. d. If ponding is used, the design must include an appropriate combination of measures such as shading, vegetated swale discharges or constructed wetland treatment cells that limit temperature increases. The pond must be designed as a dry pond and should draw down in 24 hours or less.

to reduce runoff. Infiltration systems must discharge all stormwater routed to the system within 24 hours.

e. Other methods that minimize any increase in the temperature of the trout stream. [Minn. R. 7090] 23.13 Permittees must conduct routine site inspections once every three (3) days as described in item 11.2 for projects that discharge to prohibited waters. [Minn. R. 7090] 23.14 If discharges to prohibited waters cannot provide volume reduction equal to one (1) inch times the net increase of impervious surfaces as required in item 15.4 and 15.5, permittees must develop a permanent stormwater treatment system design that will result in no net increase of TSS or phosphorus to the

prohibited water. Permittees must keep the plan in the SWPPP for the project. [Minn. R. 7090] 4.1 General Provisions. [Minn. R. 7090] 24.2 If the MPCA determines that an individual permit would more appropriately regulate the construction activity, the MPCA may require an individual permit to continue the construction activity. Coverage unde this general permit will remain in effect until the MPCA issues an individual permit. [Minn. R. 7001.0210, Subp. 6]

24.3 If the permittee cannot meet the terms and conditions of this general permit, an owner may request an individual permit, in accordance with Minn. R. 7001.0210 subp. 6. [Minn. R. 7001.0210, Subp. 6] Any interested person may petition the MPCA to require an individual NPDES/SDS permit in accordance with 40 CFR 122.28(b)(3). [40 CFR 122.29(b)(3)]

Permittees must make the SWPPP, including all inspection reports, maintenance records, training records

and other information required by this permit, available to federal, state, and local officials within three (3) days upon request for the duration of the permit and for three (3) years following the NOT. [Minn. R.7090] Permittees may not assign or transfer this permit except when the transfer occurs in accordance with the applicable requirements of item 3.7 and 3.8. [Minn. R. 7090] Nothing in this permit must be construed to relieve the permittees from civil or criminal penalties for

noncompliance with the terms and conditions provided herein. Nothing in this permit must be construed to preclude the initiation of any legal action or relieve the permittees from any responsibilities, liabilities or penalties to which the permittees is/are or may be subject to under Section 311 of the Clean Water Act and Minn. Stat. Sect. 115 and 116, as amended. Permittees are not liable for permit requirements for activities occurring on those portions of a site where the permit has been transferred to another party as required in item 3.7 or the permittees have submitted the NOT as required in Section 4. [Minn. R. 7090] The provisions of this permit are severable. If any provision of this permit or the application of any

provision of this permit to any circumstances is held invalid, the application of such provision to other

circumstances, and the remainder of this permit must not be affected thereby. [Minn. R. 7090] The permittees must comply with the provisions of Minn. R. 7001.0150, subp. 3 and Minn. R. 7001.1090, subp. 1(A), 1(B), 1(C), 1(H), 1(I), 1(J), 1(K), and 1(L). [Minn. R. 7090] 24.10 The permittees must allow access as provided in 40 CFR 122.41(i) and Minn. Stat. Sect. 115.04. The permittees must allow representatives of the MPCA or any member, employee or agent thereof, when authorized by it, upon presentation of credentials, to enter upon any property, public or private, for the

24.11 For the purposes of Minn. R. 7090 and other documents that reference specific sections of this permit, Stormwater Discharge Design Requirements" corresponds to Sections 5, 6 and 14 through 21; "Construction Activity Requirements" corresponds to Sections 7 through 13; and "Appendix A" corresponds to Sections 22 and 23. [Minn. R. 7090]

purpose of obtaining information or examination of records or conducting surveys or investigations. [40

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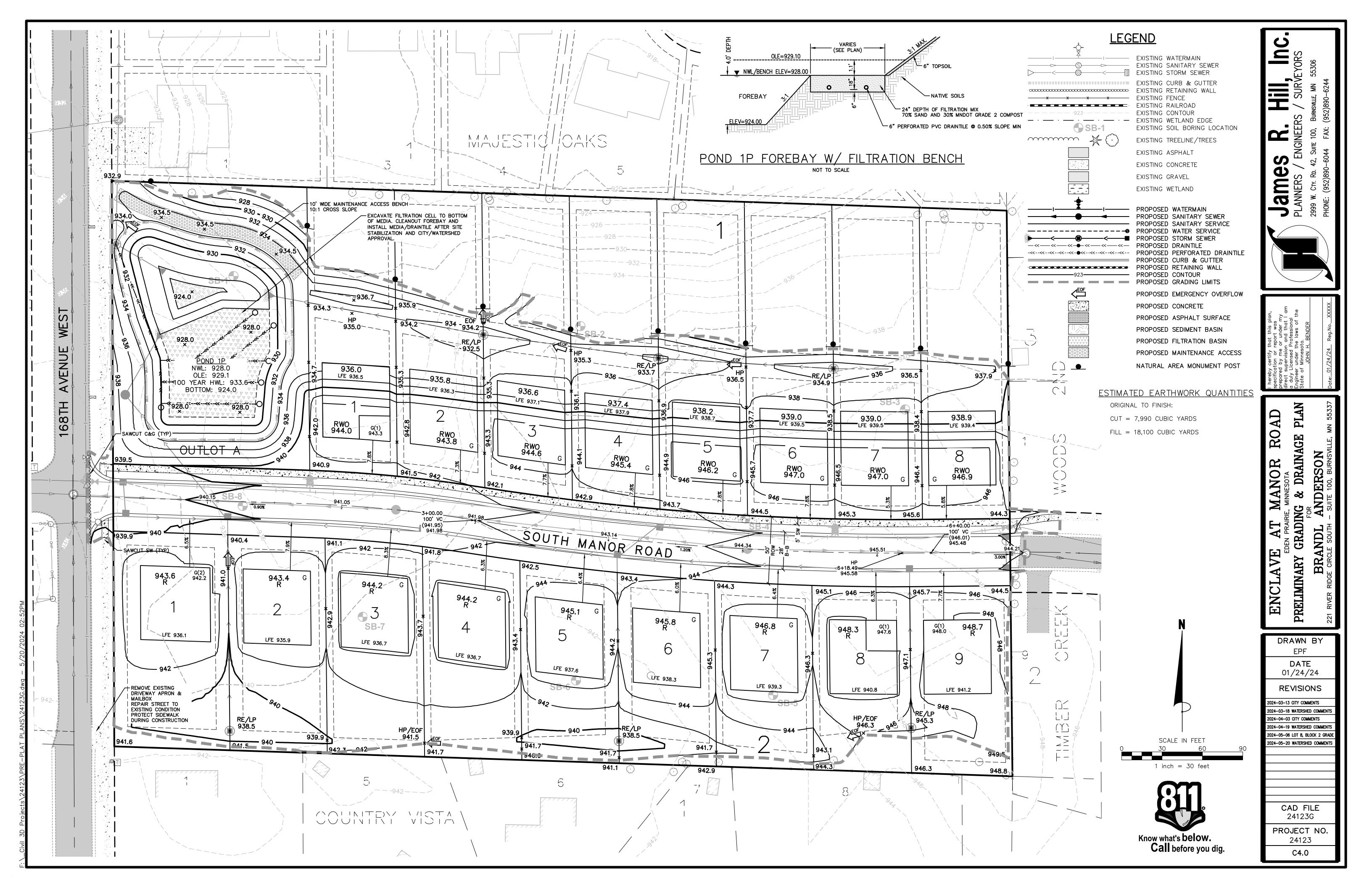
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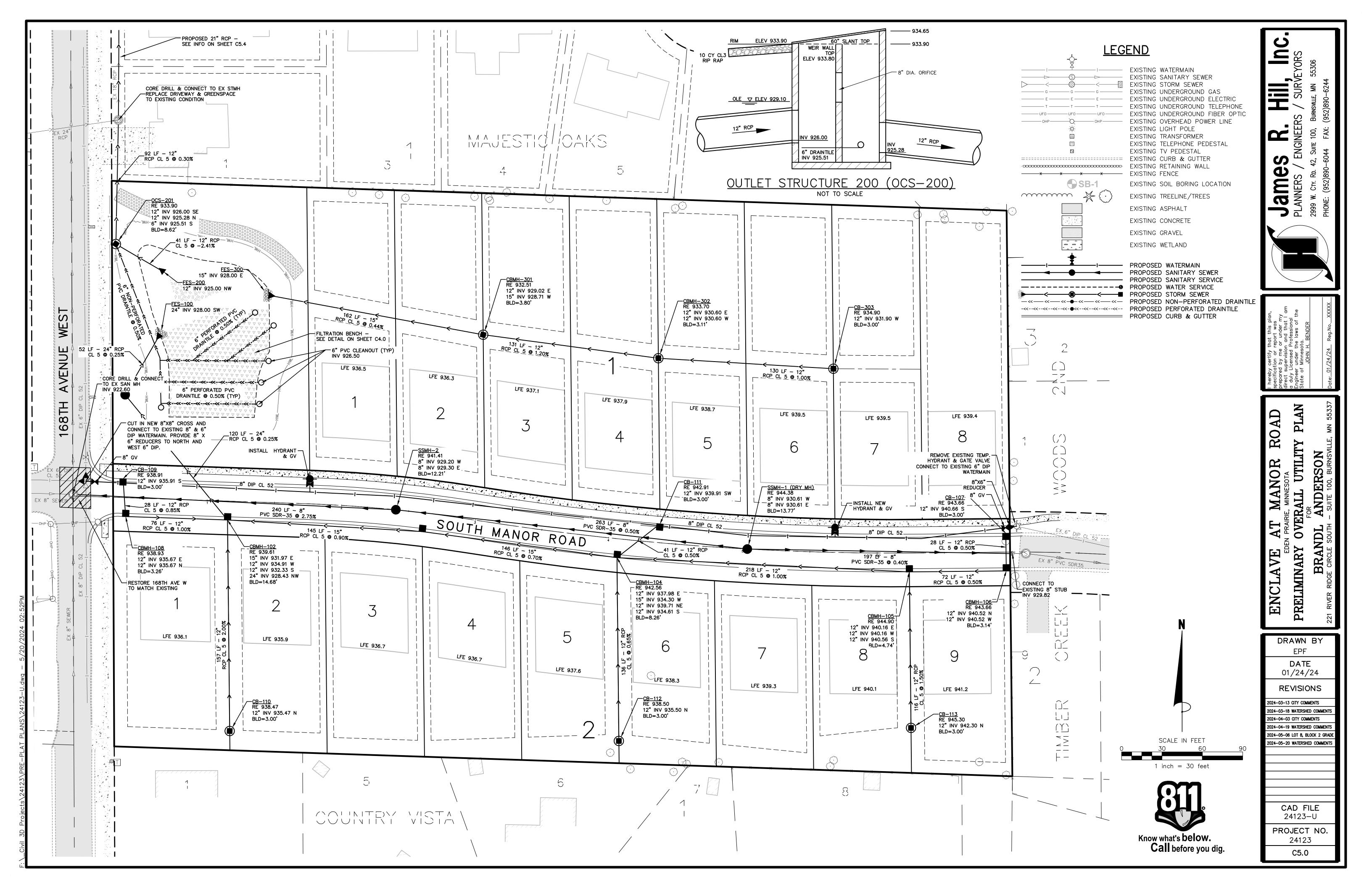
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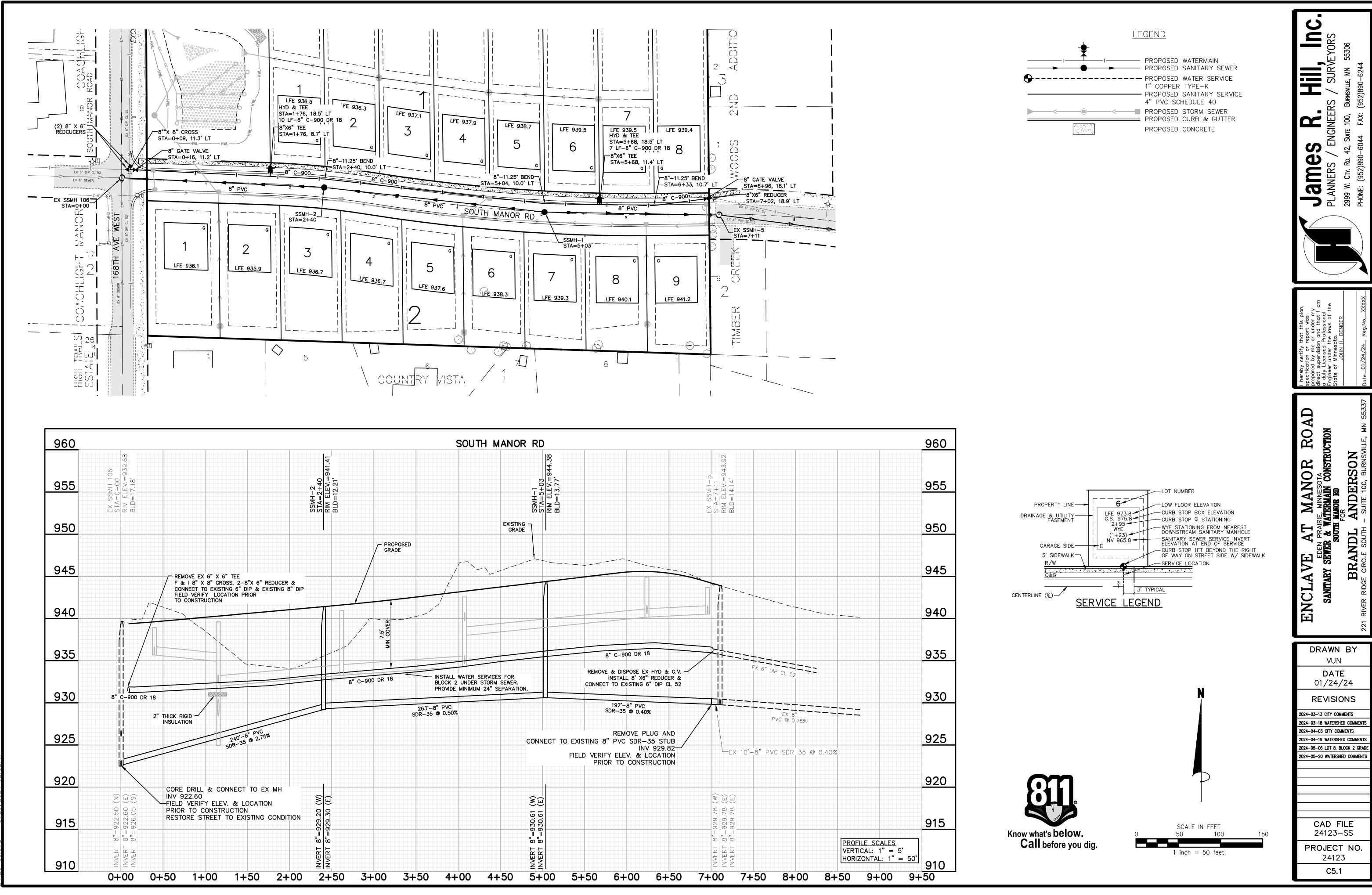
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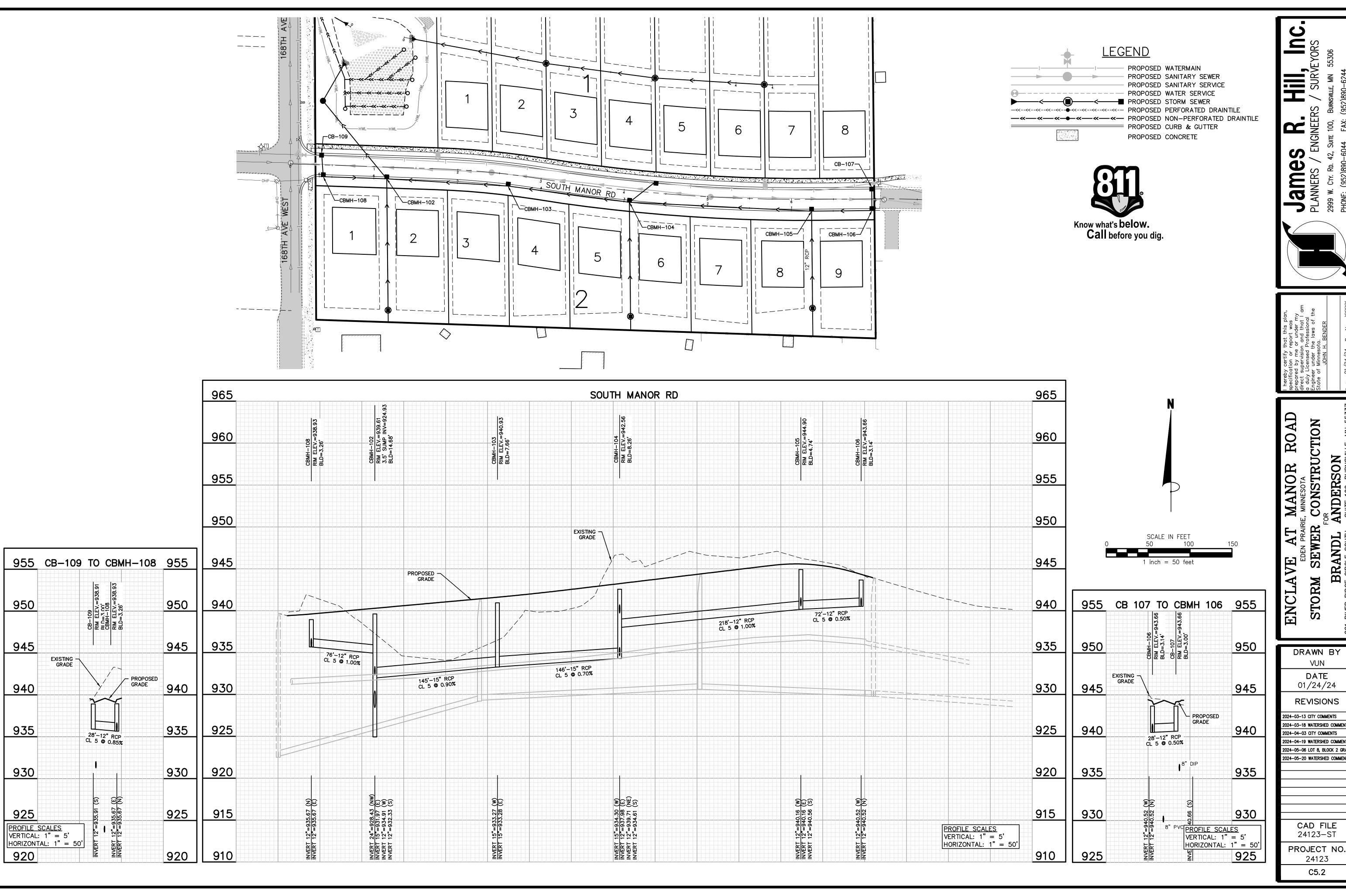
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SEWER CONSTRUCTION
FOR FOR STANDL ANDERSON
CIRCLE SOUTH - SUITE 100, BURNSVILLE, MN 5533 BRANDL
SE CIRCLE SOUTH STORM

DRAWN BY VUN DATE 01/24/24

REVISIONS 024-03-13 CITY COMMENTS 024-03-18 WATERSHED COMMENTS 024-04-03 CITY COMMENTS 024-04-19 WATERSHED COMMENTS 024-05-06 LOT 8, BLOCK 2 GRAD 024-05-20 WATERSHED COMMENTS CAD FILE 24123-ST

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